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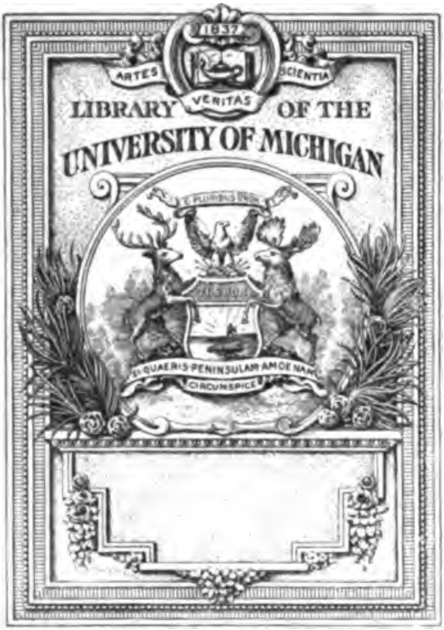
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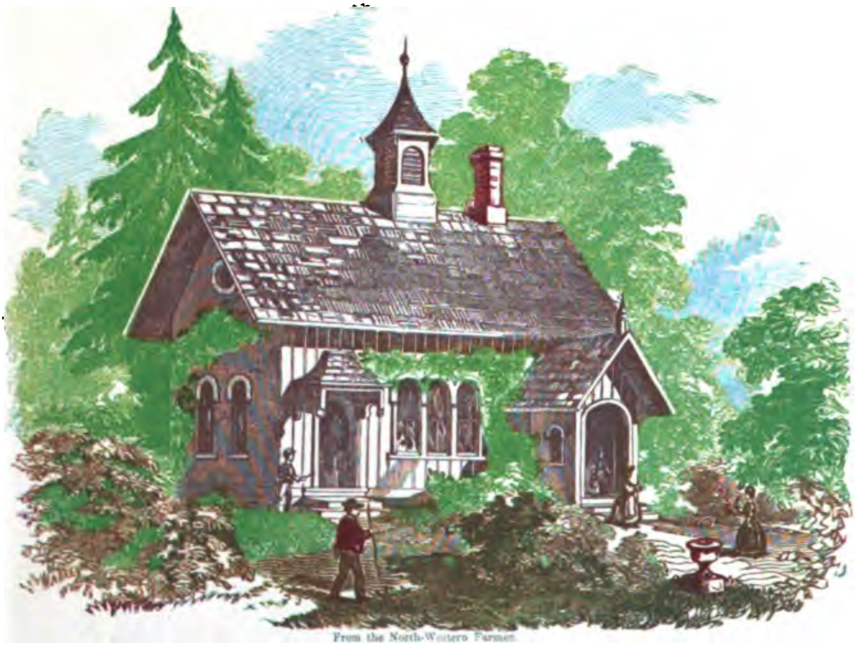


From the North-Western Farmer.

ORNAMENTAL FARM COTTAGE.

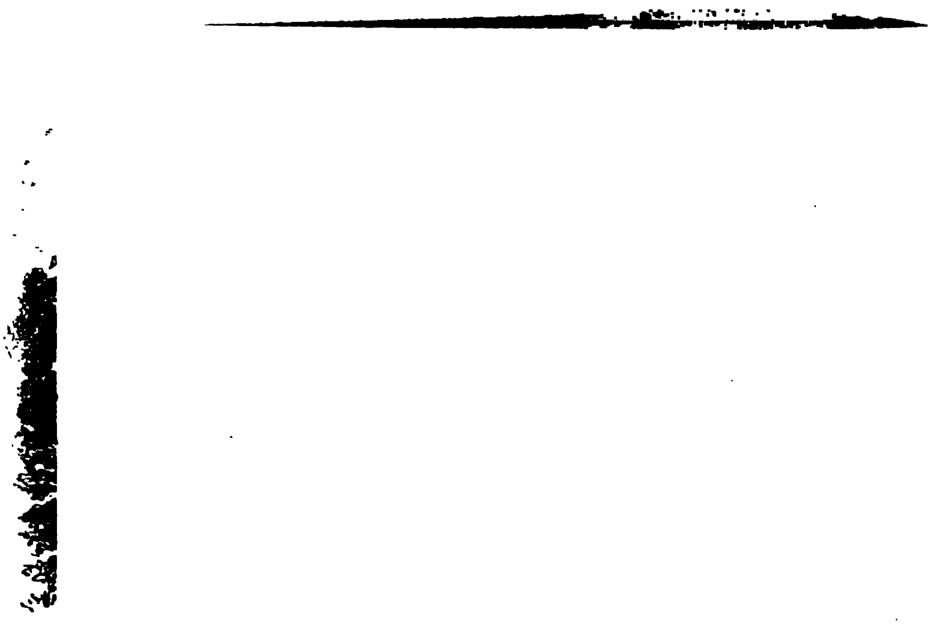
Printed in Colors from ONE BLOCK by the New Process.

ELEVENTH ANNUAL REPORT

OF THE

INDIANA

INDIANAPOLIS:
ALEXANDER H. CONNER, STATE PRINTER.
1869.



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ELEVENTH ANNUAL REPORT

OF THE

INDIANA

State Board of Agriculture,

AND THE REPORT OF

PROF. E. T. COX, STATE GEOLOGIST.

INDIANAPOLIS:
ALEXANDER H. CONNER, STATE PRINTER.
1869.

To His Excellency, Conrad Baker,

Governor of Indiana:

Sir: In accordance with the provisions of the statue, I have the honor to transmit the within report and review of the condition of agriculture throughout the State, so far as the same has been accessible through the medium of the Indiana State Board of Agriculture. Also, the able and valuable report of Prof. E. T. Cox, State Geologist, for 1869.

Very respectfully,
Your obt. servant,
A. D. HAMRICK,
President.

Fielding Beeler, *Secretary.*

165536

PREFACE.

The undersigned, in presenting this the Eleventh Indiana Agricultural Report, having been called from other pursuits, assumes the responsibility with no little misgiving and much fear that it may not be, and under the circumstances cannot be, made what the Indiana Agricultural Reports should be.

The reports from County and District Societies; County statistics of Agriculture; and written reports of Awarding Committees at not only County and District Fairs, but also elaborate and accurate, intelligent reports from the several committees who award premiums at the State Fair should form the "basis," the "corner stone" for these annual reports. *Unfortunately*, however, we have no law on State statistics other than for taxation purposes, and as such, are less than an index from which to base an intelligible conclusion touching the annual agricultural, mechanical, and industrial products of the State. We can form no conception of the value of our annual products other than mere conjecture. We have no means of judging the progress of these important interests save from county reports, and with few exceptions these simply announce that "we held a fair" on a given date; "we paid premiums and have a balance in the treasury." Not a word is said about new and improved modes of culture, or the advantages of one system over another; the success of new varieties of cereals, vegetables, and fruits; the best time in which to plant the crop or gather the harvest; all is blank. The same is unfortunately true in reference to the reports of committees at the State Fair, which all will readily admit is a rare school of general instruction to those of the many thousands *interested who are present, but utterly useless to the remaining thousands who are absent*, and might be instructed by brief, concise, and well-written reports from the several awarding committees. As a general rule, the only information one can gather from the reports of Awarding Committees is, that John Doe took the premium on "Best horse for general purposes, $50," in a ring with seven competitors; no reasons stated, as to breed, gait, age, general points of superiority over his opponents, or anything else. This not only applies to live stock, but to all classes of articles exhibited. If there are reasons that induce committees to award premiums to one and withhold them from others, the public are interested and should be informed of those reasons.

We have not been led to this train of thinking and writing for the purpose of finding fault with the past, but rather to correct, if possible, their occurrence in the future; but more than all, by the way of apology for defects that must be apparent in this volume.

My predecessor, A. J. Holmes, Esq., met with a fearful accident on the 26th day of April, sustaining injuries that terminated in his death, in consequence of which I received the appointment of Secretary from Hon. A. D. Hamrick, a copy of which appointment is published elsewhere in these proceedings. The fiscal year was one-third past; thus, there could be no material on hand for this report save the meager reports from County Societies, and the regular business transactions of the Board, I have been therefore compelled to wait until after the Fair for material out of which to make this report

By my earnest solicitations several friends of our cause have kindly furnished essays, speeches, and other valuable information, which I trust will be found interesting and instructive.

The year 1869 will long be remembered as one of unparalleled prosperity to the whole country. Just at the close of a bloody internal war, unprecedented in the annals of history in the loss of life, cost to the nation, and value of the result. The whole energy of the people seems to have recuperated, and all classes determined, as far as possible, to overcome and build up the vast interests of home production, which had been flagging during the war. Owing, therefore, to the perseverance of the farmers and artisans of our glorious State the products of Indiana for the year must far exceed that of any former one. This is evidenced by the general success which has attended all our County and District Fairs, and culminated in the State Fair, which was, in all its departments, unprecedented.

But, in the midst of our happy success, and as if to add *bitter* to our unalloyed joy and prosperity, at the very moment when the cap sheaf was being erected to its crowning position, there happened a most terrible disaster. The boiler attached to one of Messrs. Sinker & Co.'s portable engines, which was used to run their portable saw mill, exploded just after the trial. By this frightful accident some twenty persons were instantly killed and many others wounded, a few of whom subsequently died.

Much has been said in the public press, censuring severely Messrs. Sinker & Co., and their engineer (who was instantly killed), as, also, the Board of Agriculture, for allowing tests of machinery run by steam upon the fair ground. But upon this subject I need not comment, except to say that this terrible catastrophe was the result of an unforeseen accident not unusual where steam is so employed. Every man of business in the daily avocations of life is continually exposed to them. He can scarcely turn, even in the heart of our crowded cities but machinery run by steam in some form is in full view Steamboat boilers burst; steamers and other vessels burn; railroad trains collide, fall through bridges, or burn up, carrying in their trail hundreds of victims; but such accidents are so common that they are regarded without alarm. Such accidents are not unexpected; are they any more unreasonable? Are such chances any more closely guarded than boiler explosions?

These annual fairs have been held in nearly every State in the Union for twenty years; in some of the older States still longer, and at all of them steam has been employed to run the machinery. This was our seventeenth annual exhibition, and here is chronicled the first accident of the kind that has ever happened in the United States.

The mechanical department cannot be run at fairs without the aid of steam: or, if so, much more than half its interest and value is lost. I submit, therefore, if, in view of all the facts connected with this first accident, we should throw up our hands in horror at the use of steam at fairs, and abandon that department in the future.

As well might the railway trains be stopped, for they do at times kill people. So with steamboats on our rivers; but neither of these modes of conveyance are abandoned; their loads of living, energetic business people continue to crowd them, and ever will.

We should rather look at these oft repeated accidents as we have before indicated, as "unforeseen" and "unavoidable" misfortunes that we can not prevent but must endure. The State Board will undoubtedly adopt some „safety valve" as a rule to be observed in future, which will effectually guard against the occurrence of accidents of this character.

Much might be said here in reference to agricultural organizations. There is nothing like association for improvement in anything worth improving at all. So that the more thorough these organizations, the more practical they are; the more they seek to promote true principles in the cultivation of the various products of the soil, the mechanic arts, and domestic relations of life, in that same ratio shall we prosper.

The Fair is "examination day" for the year, where the lesson's of life, as developed by another year's study and experience, are recited. After a cart load of reading, how little we know of any subject when we set ourselves to work in the field, guided only by what we have read. But here, at the Fair, we have the practical results, the exhibitor as a teacher; and, if one is attentive, studies the lesson day by day as opportunity presents, the old couplet,

"I never had a piece of toast
Particularly good and wide,
But fell upon the sanded floor,
And always on the buttered side,"

will not in any wise apply to his bread and butter. Give no heed to literary theorizers, whose agricultural knowledge is mere guess work, without practical knowledge. Pursue your calling with intelligent practice. Railroads, steam engines, and telegraph wires will run them and their ever failing theories off the track after a while. Let us live in hope, using our best endeavors to bring about thoroughness in all we do, correct experiment and results in our practice that shall surely promote the great ends sought to be accomplished by our organizations, remembering that "the best agriculture makes the best State."

"The West grows men—not only wheat and corn,
But brain and nerve upon her fields are born;
Flocks, herds, and grass green springing from the sward,
Form noble inspirations for the bard.
The muse may stand in wonder by the plow,
And o'er the rythmic movements of the reaper bow,
Shall not fields golden with their unstored grain
Provoke the poet's highest, purest strain?
Who looks on these looks on the great world's bread,
By them the frugal board and banquet hall are spread.

I am pleased to be able to lay before the reader the very valuable and scientific report of Professor E. T. Cox, State Geologist, which as a thorough, accurate report, and coming from the hand of so thorough a geologist and chemist, will be recognized as a masterpiece of its kind. It contains the information now being sought after as connected with the arts and sciences. Developing the great mineral resources of our State, inviting capitalists from abroad, who have already commenced the various manufactures of iron to a large extent within our borders, Prof. Cox is furnishing the reliable information that they require.

To this geological survey, being thus prosecuted, we shall owe much of our advancement in the future. It is not claimed to be more than a reconnoisance in sections of a few counties which have made application to the State Geologist for information touching the coal, iron ores, and building stone of a few favored localities; hence it should only be regarded as an index to a final report, should our legislature permit a complete prosecution of this inestimable survey. However, I only designed to refer to this service in this connection, as the Professor is abundantly able to speak for himself.

It is, however, proper to say that nations are judged by the advancements made in the arts and sciences. The more these conduce to the benefit of the masses of society, the nine-tenths or manufacturing and producing classes, the more rapid must be advancement in all directions. The present stringency in the money market is chargeable to the unequal balance as between home products and foreign importations. As a people, we consume too much from abroad, and produce not enough at home. At this writing, all the money in this region of country is required to handle the hog crop, thus creating a stringency in other departments of trade. But there is no scarcity of money so far as this great product is concerned; for, by the laws of trade, money is attracted to the most lucrative investments. At this season of the year (December) hogs occupy the attention of moneyed men, and the farmer who is engaged in growing them is easy financially. So of the producer during the latter summer months who has on hand a supply of grain, for this always commands a fair price. Therefore there can be no scarcity of money with the producer, if he has abundance of the products of his soil, for these command money any day; and a careful cultivator should have something on hand to sell at all times, and by judicious management may have. It is common to imagine that the more money a country possesses the more affluent is its condition; and that is usually the case; but the cause is often mistaken for the effect. A great quantity of it is necessary to concentrate a great quantity of commodities. Rich, flourishing countries require an abundance of money, and possess the means of obtaining it; but the abundance is the consequence, not the cause, of their wealth, which consists in the commodities circulated, rather than the circulating medium. The wealth which proceeds from industry resembles the copious yet silent stream which, passing silently and almost invisibly, enriches the whole extent of country through which it flows. The prices of labor, of provisions, and of manufactures, bear proportion to the quantity of circulating medium. It must therefore appear obvious that with an abundance of home products, something on the farm every day for sale, the farmer, at least, should not complain; or, if so, it can but be his own fault.

They should sustain their county and State Societies for these, and well selected agricultural journals are their sources of information, whereby their practices and modes of tillage may be improved by the almost, to them, free experience of others.

FIELDING BEELER, *Secretary.*

LIST OF MEMBERS

OF THE

STATE BOARD OF AGRICULTURE

SINCE ITS ORGANIZATION, FEBRUARY, 14, 1851,

AND HISTORICAL NOTES.

These were the original corporate members of the Board as per act passed and approved February 15th, 1851, as follows:

Governor Joseph A. Wright, Marion county.
Alexander C. Stevenson, Putnam county.
Jeremiah McBride, Martin county.
Roland Willard, Kosciusko county.
Jacob R. Harris, Switzerland county.
Henry L. Ellsworth, Tippecanoe county.
John Ratliff, Morgan county.
General Joseph Orr, Laporte county.
David P. Holloway, Wayne county.
Jos. B. Kelley, Warrick county.
George W. Lane, Lawrence county.
Samuel Emerson, Knox county.
John McMahan, Washington county.
Thos. W. Sweney, Allen county.

The first meeting of the Board was held in the Hall of the House of Representatives, May 27th, 1851. At this meeting, Gov. Jos. A. Wright, was unanimously elected President of the Board; Jno. B. Dillon, Secretary; Royal Mayhew, Treasurer; George Hussey, 1st Vice President; Samuel Emerson, 2d Vice President. As provided under the organic act, the members drew lots for the long and short term, one and two years, with the following result:

For the term of two years, Messrs. Wright, Willard, Holloway, McLane, Emerson, Swinney, Hussey and Stevenson.

For the term of one year, Messrs. McBride, Ratliff, Kelley, Ellsworth, McMahan, Brown, Orr and Harris.

The bill was Senate bill No. 159, (See Senate Journal 1851, page 289) passed Monday, January 27, 1851.

On the question of engrossment, "those who voted in the affirmative were, Messrs. Adams, Brugh, Day, Defrees, Delevan, Dole, Dunn, Eddy, Ellis, Garver, Hamrick, (now President of the Board), Harvey, Holloway, Hunt, James, Kinnard, Knowlton, Marshal, McCarty, Mickel, Millikan, Niblack, Odell, Rice, Sleeth, Teegarden, Turman, Walker, Whinstandly and Woods—30.

Those who voted in the negative were, Messrs. Allen, Athon, Cravens, Dawson, English, Goodman, Hanna, Henton, Miller, Montgomery and Porter—12."

Not being able to find the House Journal for that year we have no record of the vote in the house.

Members of the Board for 1852, holding over from 1851.

Gov. Joseph A. Wright, Marion county.
Roland Willard, Kosciusko county.
D. P. Holloway, Wayne county.
Jno. McLane, Washington county.
Samuel Emerson, Knox county.
Thos. W. Sweenney, Allen county.
George Hussey, ——— ———.
Alex. C. Stevenson, Putnam county.

**Members elected for two years*, 1852–3.

Jeremiah McBride, Martin county.
George W. Brown, Shelby county.
Jacob Harris, Switzerland county.
Jno McMahan, Washington county.
George K. Steel, Parke county.
Jos. Orr, Laporte county.
A. Lenard, ——— ———.
George G. Dunn, ——— ———.

Members elected for 1853–4.

Jos. A. Wright, Marion county.
Jno. Levering, Tippecanoe county.
Alexander C. Stevenson, Putnam county.
David P. Holloway, Wayne County.
Thos. Dunham, Vigo county.
Jesse Morgan, Rush county.
Geo. W. Lane, Decatur county.
L. M. Spalding, Lagrange county.

OFFICERS.

Jos. A. Wright, President.
D. P. Holloway and Jos. Orr, Vice Presidents.
Wm. T. Dennis, Wayne county, Secretary.
Royal Mayhew, Marion county, Treasurer.

Members elected January 1854–5.

Abraham Smith, Knox county.
Samuel Herriott, Johnson county.
Jacob R. Harris, Switzerland county.
David S. Huffsetter, Orange county.
Joseph Allen, Montgomery county.
Joseph Orr, Laporte county.
I. D. G. Nelson, Allen county.
James W. Cockrun, Gibson county.

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*NOTE.—It will be observed that the list of members elected at each January meeting are *hold over members for* the following year.—SE,CY.

Members elected January 1855–6.

A. J. Hay, Clark county.
J. P. Drake, Marion county.
L. A. Matson, Putnam county.
Wm. T. Dennis, Wayne county.
Geo. D. Wagner, Warren county.
Geo. W. Lane, Dearborn county.
Stearns Fisher, Wabash county.
Wm. H. Bennett, Union county.

OFFICERS ELECTED SAME SEASON.

President, Gen'l Jos. Orr, Laporte county.

Vice Presidents, Gen'l Jas. P. Drake, Marion county, and Wm. H. Bennett, of Union county.

Secretary, Jno. B. Dillon, Marion county.

Treasurer, Salmon A. Buell, Marion county.

Members elected January 1856–7.

Joseph Orr, Laporte county.
James D. Williams, Knox county.
Colonel S. Vawter, Jennings county.
William M. Franklin, Owen county.
Dr. Rufus Haymond, Franklin county.
Dr. R. T. Brown, Montgomery county.
I. D. G. Nelson, Allen county.
Dr. G. B. Graff, Gibson county.

J. A. Matson, resigned, and Dr. A. C. Stevenson was elected to fill the vacancy, both of Putnam county.

OFFICERS ELECTED.

President, Dr. A. C. Stevenson, Putnam county.

[Can not find, by the record, that any other officers were elected at this meeting.—Sec.]

Members elected in 1857-8.

Dr. A. C. Stevenson, Putnam county.

Calvin Fletcher, jr., Marion county.
William H. Bennet, Union county.
William T. Dennis, Wayne county.
George D. Wagner, Warren county.
George W. Lane, Dearborn county.
Stearns Fisher, Wabash county.
James L. Bradley, Johnson county.

General Joseph Orr, of Laporte, resigned, and William Miller, of St. Joseph county, elected to fill the vacancy.

Calvin Fletcher, of Marion county, also resigned, and David G. Rabb, of Ohio county, was elected to fill such vacancy.

Members elected for 1858-9.

William H. Loomis, Allen county.
A. Freeman, Porter county.
A. E. Vinton, Marion county.
Jas. D. Williams, Knox county.
George B. Graff, Gibson county.
Thomas H. Collins, Floyd county.
William Miller, St. Joseph county.
William Duncan, Lawrence county.

Members elected for 1859-60.

David G. Rabb, Ohio county.
W. H. Bonner, Decatur county.
William G. Coffin, Parke county.
A. D. Hamrick, Putnam county.
William H. Bennett, Union county.
Dr. John C. Helm, Delaware county.
George D. Wagner, Warren county.
Stearns Fisher, Wabash county.

Members elected for 1860-1.

Nathan Piatt, Warrick county.
James D. Williams, Knox county.
Thomas H. Collins, Floyd county.

William Duncan, Lawrence county.
William H. Loomis, Marion county.
Azariah Freeman, Porter county.
William Miller, St. Joseph county.
George W. McConnell, Steuben county.

[The above sixteen members named purchased the present fair ground, or "Camp Morton." At this meeting the State was divided into sixteen Agricultural Districts.

Members elected for 1861-2.

Hon. D. C. Branham, for the 5th District.
Isaac B. Loder for the 6th District.
William G. Coffin for the 8th district.
A. D. Hamrick, for the 9th district.
Hon. David P. Holloway, for the 10th district.
Dr. John C. Helm, for the 11th district.
Joseph Poole, for the 12th district.
Stearns Fisher, for the 13th district.

Members elected for 1862-3.

Nathan Piatt, for the 1st district.
J. D. Williams, for the 2d district.
John C. Shoemaker, of the 3d district.
John F. Carr, for the 4th district.
Calvin Fletcher, jr., for the 7th district.
A. J. Holmes, for the 14th district.
Jas. Crawford, for the 15th district.
Hawley Peck, for the 16th district.

Members elected for 1863 4.

Lemuel Wiley, for the 5th district.
Isaac B. Loder, for the 6th district.
W. C. Donaldson, for the 8th district.
A. D. Hamrick, for the 9th district.
William H. Bennett, for the 10th district.
Dr. John C. Helm, for the 11th district.
Joseph Poole, for the 12th district.
Stearns Fisher, for the 13th district.

Members elected for 1864-5.

Prof. E. T. Cox, for the 1st district.
Hon. J. D. Williams, for the 2d district.
Hon. John C. Shoemaker, for the 3d district.
Major John McCrea, for the 4th district.
John A. Grosvenor, for the 7th district.
John Sutherland, for the 15th district.
A. J. Holmes, for the 14th district.
George W. McConnell, for the 16th district.
Prof. S. H. Thompson was appointed to fill the vacancy of Samuel Wiley, deceased, from the 5th district.

Members elected for 1865-6.

Prof. S. H. Thomas, for the 5th district.
D. E. Reese, for the 6th district.
W. C. Donaldson, for the 8th district.
Hon. A. D. Hamrick, for the 9th district.
J. M. Garr, for the 10th district.
Dr. John C. Helm, for the 11th district.
Joseph Poole, Esq., for the 12th district.
Major S. Fisher, for the 13th district.

We append the following matters appertaining to the business of the Board from its organization. At the first meeting, held in May, the Board appointed a committee to examine and report as to the feasibility of holding a State Fair in 1851.

A majority of the committee appointed reported in favor of holding a State Fair in the fall of that year, but the Board decided, after considering the matter, to hold none until the fall of 1852.

Another session was held in the Supreme Court room at the State House, commencing January 8, 1852, at which the arrangements for the coming fair, premium list, etc., were completed. The following delegates were present from the County Societies:

Allen county, I. D. G. Nelson. Elkhart county, C. L.

Murray. Fayette county, Charles M. Stone. Hendricks county, E. Singer. Henry county, J. W. Grubbs. Knox county, J. D. Williams. Laporte county, William Allen. Marion county, Calvin Fletcher, jr. Martin county, W. E. Niblack. Monroe county, L. Bollman. Ohio and Switzerland counties, John Hall. Parke county, G. K. Steele. Rush county, Jesse Morgan. Shelby county, Rev. D. Whitcomb. Steuben county, George W. McConnell. Tippecanoe county, John Levering. Vigo county, Thos. Durham. Wayne county, William T. Dennis.

Governor Wright, President of the Board, submitted quite a lengthy report to the Legislature at its session in February, showing, among other things, that about thirty county societies had been organized within the year, and that of the one thousand dollars approriated by the Legislature for the use of the State Board, about one-half had been expended.

During the session of the Legislature, pursuant to a resolution passed by the State Board, the members of the Board, delegates from county societies, and other farmers, met every Saturday evening in the hall of the House for the purpose of discussing agricultural subjects. The discussions took a very practical turn, and were reported at considerable length for the STATE JOURNAL. Among the subjects discussed were the following:

"What is the best system of roads for Indiana?"

"What is the best mode of draining swamp lands in the State?"

"What grasses are best adapted to different soils, the best for pasturage and meadow; the best modes for putting the seed in, and the best mode of curing the grasses for hay?"

"What is the comparative value of the different kinds of stock, and the best methods of raising?"

"Wheat culture" and "Fruit culture."

The first State Fair was held on the grounds now known as Military Park, in Indianapolis, beginning on Monday.

October 18, at noon, and continuing through the week, It was regarded as quite successful, the number of entries being 1,365. The receipts from the sale of badges and tickets amounted to $4,651.55. No entry fees were charged, but exhibitors were required to become members of the Society, the fee being one dollar. Including the State appropriation of $2,000, the receipts and resources amounted in all to $8,853.16—the lumber and materials being sold at the close of the fair.

The assistant secretaries during the fair were, John S. Tarkington, Berry R. Sulgrove, Francis King, John C. New, John H. Batty, and George W. Kimberly.

The assistant treasurers were, O. F. Mayhew, Foster Whitfield, D. C. Teal, and Joseph R. Haugh.

W. T. Dennis, of Richmond, was the superintendent.

Sims A. Colley was the auctioneer, receiving five dollars for his services on Saturday.

The total amount of cash premiums paid was $1,026; the cost of silver cups, diplomas, etc., being $570.95 additional. The highest premiums awarded were $25 each for three essays. One of these was given to Benjamin Reynolds, of White county, for an essay on the "Best Method of reclaiming and improving the swamp lands of Indiana;" another to Prof. B. Lawrence, of Monroe county, for a similar essay on "Hilly lands;" and the third was given to J. T. Smith, of Rush county, for a plan for farm house, barn and out-buildings.

No premiums were given on horses for speed only, the highest premiums for stock of any kind being $10.

Reporters also had the privilege of buying their tickets at that time just like other people.

It was the custom at that time to have addresses delivered at all the County Fairs, and there was to have been one at the State Fair, but we believe there was none that year.

For the year 1853 the members of the Board remained nearly the same: Governor Wright was retained as President, and Royal Mayhew as Treasurer, while D. P. Holloway, of Richmond, and Joseph Orr, of Laporte, were chosen as Vice-Presidents, and W. T. Dennis, of Richmond, Secretary.

The second Fair was held at Lafayette, commencing October 10, 1853. The receipts were $6,751, while the cash premiums awarded were $842. The silverware, however, amounted to $1,564.45. A silver cup valued at $20 was awarded to Dr. R. T. Brown, then living at Crawfordsville, for an essay on swamp lands. The address was delivered by Horace Greeley, the subject being, "What the Sister Arts Teach as to Farming." Joseph J. Bingham, then living at Lafayette, was superintendent.

In the course of the year addresses were delivered before county societies by the following persons: Bartholomew county, Dr. N. Tompkins; Carroll county, Dr. F. G. Armstrong; Cass county, James Warren; Elkhart county, Dr. E. W. H. Ellis; Franklin county, Rev. T. A. Good, Dr. F. R. Goodwin, and Dr. R. Haymond; Grant county, James F. McDowell; Hendricks county, J. W. Gordon, Esq.; Johnson county, John S. Hougham; Knox county, James Dick; Laporte county, Gilbert Hathaway; Ohio and Switzerland counties, John Dumont; Putnam county, Dr. A. C. Stevenson and J. A. Matson, Esq.; Tippecanoe county, Hon. Daniel Mace; Vigo county, Hon. S. B. Gookins; Washington and Orange counties, Governor Joseph A. Wright.

Quite a large number of county fairs were held that year, the receipts averaging from three to five hundred dollars. No time tracks were thought of then, and four acres was regarded as quite enough room for the Fair. Rush county had but two acres enclosed, but it is acknowledged that there was scarcely enough room on the second and third days for the crowd to bestow themselves comfortably. In Decatur county a lease had been effected of four acres for six years, by paying one-fourth the expense of fencing, and by another year they expected "to be able to show a little the most complete fair grounds of any county in Indiana."

The third State Fair was held at Madison, in October, 1854. The receipts were $3,623.84 for badges and tickets sold. The cash premiums awarded amounted to about $600; but a large amount of silver plate was also given. It rained heavily during the entire week, making the fair almost a failure.

At the January session, 1855, of the Board, there were forty-eight delegates from county societies present. The following persons were elected to fill vacancies that would occur at the close of that session: A. J. Hay, Clark county; J. P. Drake, Marion county; J. A. Matson, Putnam county; W. T. Dennis, Wayne county; G. D. Wagner, Warren county; G. W. Lane, Dearborn county; Stearns Fisher, Wabash county; William H. Bennett, Union county.

General Joseph Orr, of Laporte county, was elected President, General James P. Drake, of Marion, and Wm. H. Bennett, of Union, Vice Presidents; John B. Dillon, of Marion, Secretary, and Salmon A. Buell, of Marion, Treasurer. Messrs. Orr, Dennis, Matson, Lane, and Wagner were appointed an executive committee.

The fourth annual fair was held at Indianapolis, in October, 1855. The exhibition was a highly successful one, the receipts from badges and tickets alone being $10,823.75, and the total receipts, including $1,500 appropriated by the Legislature, and $1 000 by the Marion County Agricultural Society, $14,572.54. Some $7,000 of this was expended in the improvement of the fair grounds, and about $,4000 paid in premiums—cash and silverware.

The address this year was delivered by Prof. J. J. Mapes, of New York, and was upon the subject of "Drainage and Subsoiling."

Special premiums of silver cups, worth $25 each, were given for essays, as follows:

Cultivation of Wheat—J. R. Goodwin, of Franklin county.

Irish Potatoes—Charles M. Walker, of Marion county.

Grasses of Indiana—Dr. R. T. Brown, of Montgomery county.

Fruits of Indiana—W. H. Loomis, of Allen county.
Soils of Indiana—Ignatius Brown, of Marion county.
Manures—Oliver Albertson, of Washington county.
Ditching and Draining—R. J. Gatling, Marion county.
Fencing and Hedging, Wilber F. Stone, Putnam county.
The Dairy—Dr. R. T. Brown, Montgomery county.

The fair of 1856 was held at Indianapolis, October 20th to 25th, inclusive. It was more complete and successful than any previous one. The receipts from the sale of badges were $9,264; from single tickets, $4,058.75; and from other sources, $1,040.59; making the total revenue from the fair $14,373.34.

The number of entries was 3,327.

Essays on Indian Corn were read before the Board that year by Lewis Bollman, of Monroe; Dr. R. T. Brown, Ignatius Brown, and R. J. Gatling. A pitcher worth $50 was awarded for the first, and a goblet worth $25 for the second named.

R. P. Johnson, of New York, had been invited to deliver the annual address, but he failed to come to time.

Nightly discussions upon agricultural subjects were held at the State House, which were regarded as highly advantageous.

Our information concerning the fair of 1857 is incomplete. It was, however, held at Indianapolis, and highly successful in every respect, the receipts having been nearly $15,000.

At the January session, 1858, of the Board, there were sixty-five county societies represented.

The following members of the Board were selected to fill vacancies: W. H. Loomis, of Allen; A. Freeman, of Porter; A. E. Vinton, of Marion; James D. Williams, of Knox; George B. Graff, of Gibson; T. H. Collins, of Floyd; William Miller, of St. Joseph; and William Duncan, of Lawrence.

Charges of unfairness in the awards of premiums at the previous fair created a good deal of discussion. A committee of investigation was appointed, but they reported the charges groundless.

Thomas H. Sharpe, of Marion, was elected Treasurer, vice Buell, resigned; John B. Dillon, Secretary, vice Brown, resigned; and Messrs. Stephenson, Loomis, Williams, Vinton, and Rabb, were selected as executive committee. The fair of that year was held at Indianapolis.

The receipts of this year were but $11,500, and failed to pay the current expenses by about $3,000. This was owing, to a considerable extent, to the abolition of the single ticket system, which had made the receipts of the previous years so large, and the return to the badge system of admission.

At the January meeting, 1859, there were sixty-six delegates present from county and district societies.

The Board elected George D. Wagner President; J. D. Williams and W. H. Bennett Vice Presidents; J. B. Dillon, Secretary; Thomas H. Sharpe, Treasurer; and John L. Bradley, Superintendent.

It was ordered that the State Fair be held at New Albany. Here, again, various causes combined to render the fair a financial failure. The badge system, three continuous rainy days, the remoteness of New Albany from the center of the State, the difficulty of reaching the fair by railroad, and the failure of the citizens of Kentucky and of Louisville, especially, to patronize the State Fair, as was supposed, all worked against it. The total receipts were $15,628.21, while the premiums and expenses amounted to $15,237.99. By this time, January, 1860, the Board was nearly bankrupt, and yet it was necessary to purchase other and more commodious grounds.

Here it was that the movement first originated to purchase grounds. Hon. T. A. Morris, Thomas H. Clark, A. E. Vinton, L. W. Hasselman, W. H. Talbot, and other leading citizens of Indianapolis, by their hearty assistance, with a united movement on the part of the railway companies, and the assistance of W. H. Loomis, then a resident member of the Board, they were induced to purchase their present grounds, in the face of strong opposition on the part of some of the members, at $400 per acre. It will now readily command $1,000 per acre. The railway companies, however, paid the fee simple for thirty acres, and the Board for eight acres.

At the January meeting the following members were elected: First district, Nathan Pratt; second district, Jas. D. Williams; third district, Thomas H. Collins; fourth district, William Duncan; seventh district, W. H. Loomis; fourteenth district, Azariah Freeman; fifteenth district, William Miller; sixteenth district, George W. McConnell.

The new board elected the following officers: G. D. Wagner, President; James D. Williams, Vice President; William T. Dennis, Secretary; Thomas H. Sharpe, Treasurer.

During the spring negotiations were pending for the purchase of new grounds, and in June, in connection with, and assisted by, some of the railroad companies, the present tract, known as Camp Morton, was purchased, containing thirty acres, and up to the time of holding the fair that year, over $14,000 were expended on it. The fair of that year was a success in every way except financially, although the weather was unfavorable during a portion of the time. The receipts were about $11,000, and at the January session following, the badge system and complimentary tickets were abolished.

At that session the following officers were elected: D. P. Holloway, Wayne county, President; J. D. Williams, Knox county, Vice President; William T. Dennis, Wayne county, Secretary; H. A. Fletcher, Marion county, Treasurer; James L. Bradley, Johnson county, Superintendent.

In the May following, Mr. Holloway, having been appointed Commissioner of Patents, resigned; as, also, W. T. Dennis, Secretary. To fill the latter vacancy, W. H. Loomis, of Marion, was elected; the salary being $1,200 per annum, was reduced to $150.

Mr. Williams was elected President, and Mr. Fisher, Vice President.

The fair had been ordered to be held in September, but the war prevented the order from being carried out.

At the January session, 1862, the following officers were elected: President, J. D. Williams; Vice President, Stearns Fisher; Secretary, W. H. Loomis; Treasurer, H. A. Fletcher; Superintendent, J. A. Grosvenor.

The receipts of the fair that fall were very light, amounting to about $4,000.

At the January session, 1863, A. D. Hamrick was chosen President, the other officers being re-elected.

The fair that fall was but moderately successful, the receipts being $8,000.

At the January session, 1864, A. D. Hamrick was elected President; Dr. John C. Helm, Vice President; William H. Loomis, Secretary; and Francis King, Treasurer.

The fair that year was again held at Indianapolis, the receipts being about $10,000.

At the January session, 1865, the following persons were elected members of the Board in place of those retiring:

Fifth district, Prof. S. H. Thompson; sixth district, D. E. Reese; eighth district, W. C. Danaldson; ninth district, A. D. Hamrick; tenth district, J. M. Garr; eleventh district, Dr. John C. Helm; twelfth district, Joseph Poole; thirteenth district, Major S. Fisher.

The following officers were chosen: President, Major Stearns Fisher, Wabash; Vice President, Joseph Poole, of Attica; Secretary, W. H. Loomis, of Indianapolis; Treasurer, Carlos Dickson.

The fair that year was held at Fort Wayne, the receipts being $10,500.

Members elected for 1866-7.

Prof. E. T. Cox, New Harmony, Posey county.
Hon. J. D. Williams, Pond Creek Mills, Knox county.
Hon. J. C. Shoemaker, Rome, Perry county.
Major John McCrea, Bloomington, Monroe county.
Julius A. Grosvenor, Indianapolis.
A. J. Holmes, Rochester, Fulton county.
John Sutherland, Laporte, Laporte county.
Dr. George W. McConnell, Angola, Steuben county.

Members elected for 1867-8.

Benjamin North, Rising Sun, Ohio county, for 5th district.

David E. Reese, for the 6th district.

W. C. Danaldson, for the 8th district.

Hon. A. D. Hamrick, for the 9th district.

Alexander Heron, for the 10th district.

Dr. John C. Helm, for the 11th district.

Joseph Poole, Esq., for the 12th district.

H. Caldwell, for the 13th district.

Members elected for 1868-9.

Prof. E. T. Cox, for the 1st district.

Hon. James D. Williams, for the 2d district.

Hon. John C. Shoemaker, for the 3d district.

Major John McCrea, for the 4th district.

Jacob Mutz, for the 7th district.

A. J. Holmes, for the 14th district.

John Sutherland, for the 15th district.

Dr. G. W. McConnell, for the 16th district.

Members elected for 1869-70.*

Benjamin North, Ohio county, for the 5th district.

Thomas Mitchell, Rush county, for the 6th district.

Judge D. C. Danaldson, Parke county, for the 8th district.

A. D. Hamrick, Putnam county, for the 9th district.

Alexander Heron, Fayette county, for the 10th district.

William Crim, Madison county, for the 11th district.

Joseph Poole, Esq., Fountain County, for the 12th district.

H. Caldwell, Wabash county, for the 13th district.

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* NOTE.—Members whose terms expire in January, 1870, are those elected in 1868.

The following named gentlemen have been Presidents of the Board:

Governor Joseph A. Wright, Marion county.
General Joseph Orr, Laporte county.
Dr. A. C. Stevenson, Putnam county.
General George D. Wagner, deceased, Warren county.
Major Stearns Fisher, Wabash county.
Hon. A. D. Hamrick, Putnam county, and present incumbent.

The following named gentlemen have been Secretaries:

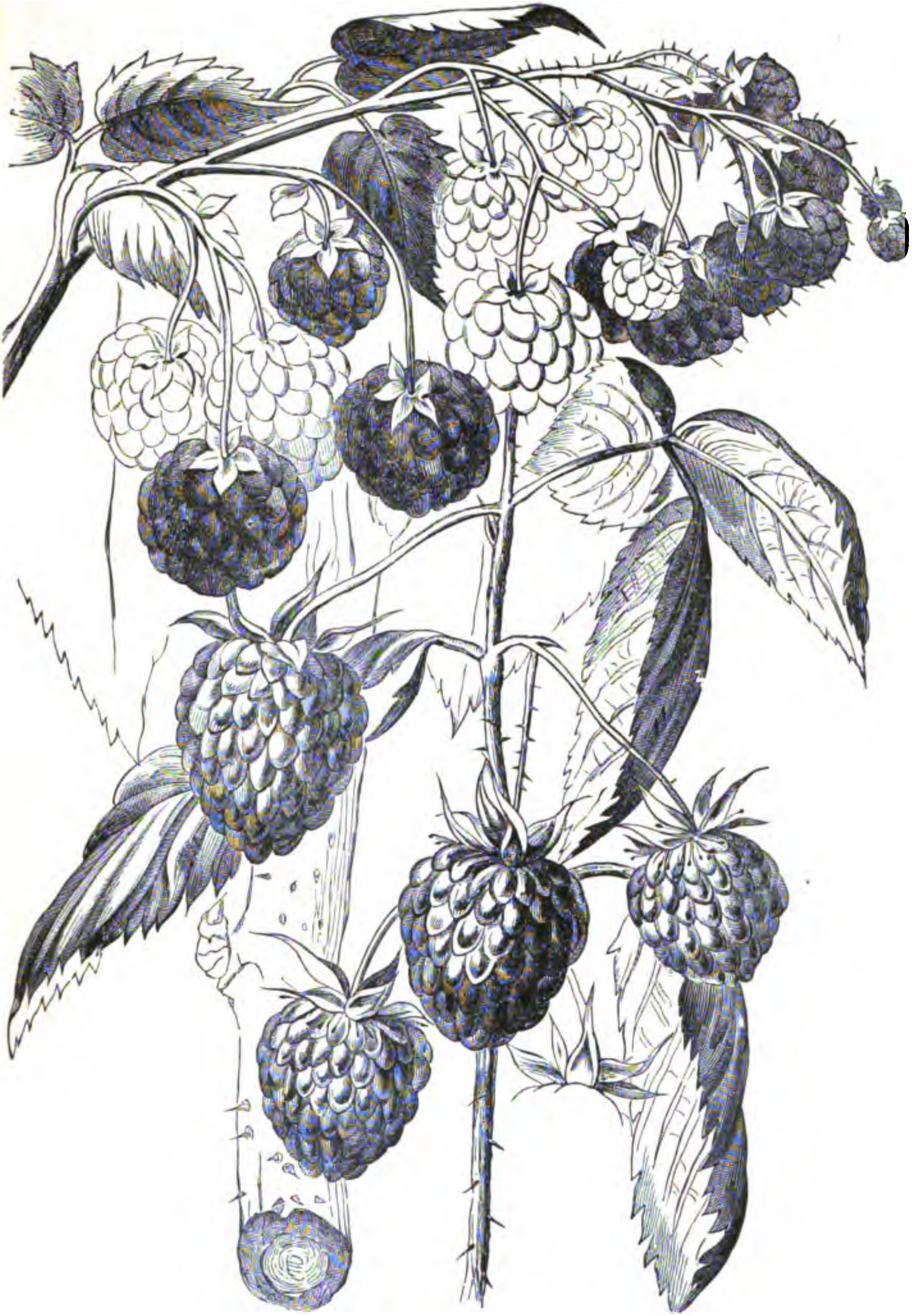
John B. Dillon, Marion county, six years.
William T. Dennis, Wayne county, two years.
Ignatius Brown, Marion county, one year.
William H. Loomis, Marion county, six years.
A. J. Holmes, Fulton county, two years and four months.
Hon. Fielding Beeler, Marion county, present Secretary, eight months.

The following named gentlemen have been treasurers:

Royal Mayhew, Marion county.
S. A. Buell, Marion county.
Thomas H. Sharpe, Marion county.
Francis King, Marion county.
Horace A. Fletcher, Marion county.
Carlos Dickson, Marion county, present incumbent.

The following named gentlemen have been General Superintendeats:

William T. Dennis, Wayne county.
Calvin Fletcher, jr., Marion county.
James L. Bradley, Johnson county.
William H. Loomis, Marion county.
J. A. Grosvenor, Marion county.
John B. Sullivan, Marion county, present incumbent.



PHILADELPHIA RED ANTWERP RASPBERRY.

TOTAL RECEIPTS FROM ALL SOURCES,

AS PER

TREASURERS' JANUARY REPORTS OF EACH YEAR,

COMMENCING WITH THE FIRST REPORT, AS PER RECORD.

1860.

Old balance	$3,914 71
Total receipts, 1859	15,628 21
Cash on hand	495 22

THOMAS H. SHARPE, *Treasurer.*

1861.

Old balance	$195 22
Total receipts	24,052 11
Cash on hand	501 05

THOMAS H. SHARPE, *Treasurer.*

1862.

Old balance	$501 05
Total receipts	658 62
Cash on hand	139 04

H. A. FLETCHER, *Treasurer.*

1863.

Old balance	$139 04
Total receipts	7,080 76
Cash on hand	974 51

H. A. FLETCHER, *Treasurer.*

1864.

Old balance	$974 51
Total receipts	44,690 19
Cash on hand	350 00

FRANCIS KING, *Treasurer.*

1865.

Old balance	$3 50
Total receipts	24,872 54
Cash on hand	3,704 14

CARLOS DICKSON, *Treasurer.*

1866.

Old balance	$3,704 14
Total receipts	36,775 93
Cash on hand	14,729 10

CARLOS DICKSON, *Treasurer.*

1867.

Old balance	$14,729 10
Total receipts	38,146 79
Cash on hand	6,467 30

CARLOS DICKSON, *Treasurer.*

1868.

Old balance	$6,467 30
*Total receipts	29,089 00

1869.

Receipts of State Fair	$22,360 00

CARLOS DICKSON, *Treasurer.*

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* NOTE.—This is only intended as an approximate estimate, the correct figures not appearing until the treasurer makes his report next January.

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ERRATA.

Page 10, eleventh line from top of page insert l in quality; fourteenth line, first word, insert n for m.

Page 22, eighteenth line from top, insert b in doubled.

Page 40, bottom line, transpose *is* before *it—is it.*

Page 41, second line from top, *semi-colon* in place of *period.*

Page 42, eleventh and twelfth lines from top, Progressive.

Page 46, third line from top, strike out *in;* fifth line strike out *in* and *they.*

Page 48, second line from top, strike out, *second the,* and read *an*; fifth line from the bottom, strike out *would* and read *will.*

Page 101, near bottom, read Alfred Riel.

Page 139, second line from bottom, read *Thomas* instead of *Thoms.*

Page 187, fourth line from top read *borer* instead of *porer.*

Page 215, tenth line from top, read *Fallawater.*

OFFICERS

OF THE

INDIANA STATE BOARD OF AGRICULTURE

FOR 1869.

PRESIDENT,

HON. A. D. HAMRICK, Hamrick's Station, Putnam County.

VICE-PRESIDENT,

JOHN SUTHERLAND, Laporte, Laporte County.

TREASURER,

CARLOS DICKSON, Indianapolis, Marion County.

GENERAL SUPERINTENDENT,

JOHN B. SULLIVAN, Indianapolis, Marion County.

SECRETARY,

FIELDING BEELER, Indianapolis, Marion County.

STATE GEOLOGIST,

PROF. E. T. COX, Indianapolis, Marion County.

(OFFICE—*State House, Indianapolis.*)

MEMBERS

OF THE

INDIANA STATE BOARD OF AGRICULTURE.

1st District—E. T. COX, New Harmony, Posey county.
2d District—HON. J. D. WILLIAMS, Wheatland, Knox county.
3d District—HON. JNO. C. SHOEMAKER, Cannelton, Perry county.
4th District—JOHN McCREA, Bloomington, Monroe county.
5th District—BENJAMIN NORTH, Rising Sun, Ohio county.
6th District—THOS. V. MITCHELL, New Salem, Rush county.
7th District—HON. JACOB MUTZ, Edinburg, Johnson county.
8th District—HON. W. C. DANALDSON, Montezuma, Parke county.
9th District—HON. A. D. HAMRICK, Hamrick, Putnam county.
10th District—ALEXANDER HERON, Connersville, Fayette county.
11th District—WILLIAM CRIM, Anderson, Madison county.
12th District—JOSEPH POOLE, ESQ., Attica, Fountain county.
13th District—HEZEKIAH CALDWELL, Wabash, Wabash county.
14th District—A. J. HOLMES,* Rochester, Fulton county.
15th District—JOHN SUTHERLAND, Laporte, Laporte county.
16th District—DR. GEO. W. McCONNELL, Angola, Steuben county.

EXECUTIVE COMMITTEE.

HON. A. D. HAMRICK, President *ex-officio.*

JOSEPH POOLE,
JOHN SUTHERLAND,
A. J. HOLMES,*
GEO. W. McCONNELL.

---

* Deceased.

INDIANA

STATE BOARD OF AGRICULTURE

1869.

JANUARY MEETING.

The Indiana State Board of Agriculture met in their Rooms at the State House at 10 o'clock, A. M.

Hon. A. D. Hamrick, President, in the chair.

The following members of the Board elect answered to the call of their names:

From the 1st District—Prof. E. T. Cox, Posey county.

From the 2d District—Hon. Jas. D. Williams, Knox county.

From the 3d Dist.—Hon. J. C. Shoemaker, Perry county.

From the 4th District—Major John McCrea, Monroe county.

From the 5th District—Benj. North, Ohio county.

From the 7th District—Jacob Mutz, Shelby county.

From the 8th District—Judge W. C. Donaldson, Parke county.

From the 9th District—Hon. A. D. Hamrick, Putnam county.

From the 10th District—Alex. Heron, Fayette county.

From the 11th District—Dr. John C. Helm, Delaware county.

From the 12th District—Joseph Poole, Esq., Fountain county.

From the 13th District—H. Caldwell, Wabash county.
From the 14th District—A. J. Holmes,* Fulton county.
From the 15th District—J. Sutherland, Laporte county.
From the 16th District—Dr. Geo. W. McConnell, Steuben county.

The following members of the State Board proper appeared and were admitted from their respective County and District Societies:

From the county of Allen, Lot S. Bayless.
From the county of Boone, John Higgins.
From the county of Cass, C. B. Laselle.
From the county of Dearborn, John Anderg.
From the county of Decatur, R. R. Cobb.
From the county of DeKalb, James E. Rose.
From the county of Delaware, Mark C. Smith.
From the county of Fayette, A. B. Claypool.
From the county of Fountain, J. W. C. Shutz.
From the county of Franklin, S. P. Roberts.
From the county of Fulton, C. H. Robbins.
From the county of Grant, D. P. Cubberly.
From the county of Harrison, L. B. Luckett.
From the county of Hendricks, A. V. Hadley.
From the county of Howard, S. J. Schooley.
From the county of Henry, Simeon T. Powell.
From the county of Johnson, C. B. Tarlton.
From the county of Knox, Hon. J. D. Williams.
From the county of Laporte, John Sutherland.
From the county of Madison, Wm. Crim.
From the county of Marion, John S. Dunlop.
From the county of Marshal, D. McDonald.
From the county of Miami, N. C. Ross.
From the county of Monroe, C. F. Dodds.
From the county of Montgomery, S. H. Fitzgerald.
From the county of Morgan, E. Henderson.
From the county of Noble, G. W. Chapman.
From the county of Owen, J. W. Archey.

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* Deceased.

From the county of Parke, John Prichard.
From the county of Perry, J. C. Shoemaker.
From the county of Porter, A. Freeman.
From the county of Posey, E. T. Cox.
From the county of Putnam, Dr. A. C. Stevenson.
From the county of Rush, T. M. Smith.
From the county of Spencer, S. F. Johnson and R. F. Kirderd.
From the county of Steuben, Dr. Geo. W. McConnell.
From the county of Sullivan, Calvin Taylor.
From the county of Tippecanoe, H. T. Sample.
From the county of Union, Eli Pigman.
From the county of Vermillion, Wm. Schidmore.
From the county of Vigo, Thos. Dowling.
From the county of Wayne, R. Baldridge.

DISTRICT SOCIETIES.

From Bridgton Union, D. Seybold.
From Edinburg Union, John A. Thompson.
From Fountain and Warren, J. W. C. Shultz.
From Knightstown Union, M. A. Bundy.
From Switzerland and Ohio, L. Bledsoc.
From Vigo Horticultural Society, H. D. Scott.

The President then announced the following Standing Committees:

On Claims—Dr. John C. Helm, H. Caldwell, M. C. Smith, C. H. Robins, Wm. Crim, John A. Thompson.

On Rules and Regulations—Joseph Poole, Geo. W. McConnell, John McCrea, J. S. Dunlop, John Prichard.

On Fair Grounds—H. Caldwell, A. J. Holmes, Jacob Mutz, A. Freeman, Lot S. Bayless.

On Unfinished Business—E. T. Cox, John C. Shoemaker, W. C. Danaldson, John Higgins, A. V. Hadley.

On Premium List—Hon. J. D. Williams, John Sutherland, Alex. Heron, Dr. A. C. Stevenson, John Auderg.

The Board being thus organized, were ready for the regular business of the session, whereupon the President presented his annual address as follows, to-wit:

PRESIDENT'S ANNUAL ADDRESS.

Gentlemen of the Indiana State Board of Agriculture:

It affords me great pleasure, at the close of another year's labor, to be able to renew my congratulations for the abundant success which has crowned our efforts throughout the year, and to publicly offer to you my acknowledgments for the confidence and favor, which thus a second time has made it my pleasant duty to act as your presiding officer. During the past year a benificent Providence has smiled upon our State. Health and peace, invigorating sunshine and refreshing showers have fallen to our lot. The hand of labor in all its multiform employments has been blessed, demonstrating anew its great and growing interest, by the sunshine of prosperity. The inhabitants of our State have done their work faithfully and done it well, and, of right, now reap a rich reward. In quantity and in quality, the products of our State have seldom been surpassed, while a ready sale and high prices await the farmer almost at his own door.

For these continued and gratifying evidences of abounding goodness, let us be deeply thankful to that kind and merciful Father in whose hands are the destinies not only of States and nations, but of all mankind.

Our last Fair was held in this city upon our own beautiful grounds, known as Camp Morton, and was, in many respects, perhaps the most satisfactory and successful ever held by the Board. In the stock department, although not so numerous as at some former Fairs, the stock was of very superior quality. In agricultural implements, machinery, mechanics and fine art halls, the exhibition was far in advance of any previous Fair, affording the best evidence of the increasing usefulness of the Society, and giving full promise of a bright future.

RECEIPTS.

The receipts for the year 1868 were as follows, to-wit:

On account of appropriation on the part of the State	$1,500 00
Subsbription of citizens of Indianapolis	2,362 29
Appropriation of City Council	1,000 00
From Railroads	462 00
From sales of lumber, and other sources	479 31
From State for Reports of 1867	1,000 00
Receipts during the Fair	18,145 75
Cash on hand	13,197 44
Making a total of	$38,146 79

DISBURSEMENTS.

There have been paid out the following sums, to-wit:

Cash premiums	$7,087 00
For medals and diplomas	463 90
For permanent bnildings and repairs	14,453 57
For current expenses	9,675 02
Making a total of	$31,679 49
Which deducted from the receipts leaves a balance of	$6,467 30

For a more specific account of receipts and expenditures I respectfully refer you to the full and detailed report of the Secretary and Treasurer, which are herewith appended.

At the last annual meeting of the Board, I reported an unsettled claim against the General Government for the use of and damage to our Fair Ground, of five thousand one hundred and eighty-nine dollars and twenty cents. No part of this claim has since been received, and nothing further from the department has been learned indicating what disposition will be made of the claim.

At the last meeting of the Legislature two years ago, an appropriation was made of three thousand dollars for each of the two following years, to enable the Board to resume the publication of the annual reports. This munificence was intended to be annual, but by some means was so changed as to expire at the close of the year 1868. In pursuance of this law, a report for each of the years 1867 and 1868 has been published, the last one being now ready for distribution. But no further reports can be published without additional aid from the State. It is, therefore, earnestly hoped that our labor has so far commended itself to the confidence of the people, that their honored representatives will continue to afford the liberal aid and encouragement we have heretofore received at their hands.

But valuable as our reports have been, they still lack some facts of great use to the public. They should, by all means, contain a full and complete statistical account of the entire products of the State. This would enable producers and consumers to become possessed of a knowledge of the State's resources that might be used both to direct our own labors, and to exchange for similar information with neighboring States and foreign countries. Some adequate provision of law, therefore, for collecting annual statistics of our products, and progress would, beyond all doubt, be a source of great practical utility, affording as it would, a true index of our industries and their proper direction.

I therefore earnestly recommend that steps be taken to procure the passage of a law by the present Legislature upon this important subject.

Early last fall a call was issued by the Governor of Illinois to the neighboring States, inviting the appointment of delegates to meet in convention at Springfield, Illinois, for the purpose of considering and adopting some means to protect the North-west from the ravages of the disease among cattle, commonly called the Texas cattle fever. This disease had already visited portions of our State with fatal results, and, believing the interest of our own State demanded like protection with our neighboring States, I thought it best to appoint the Hon. Joseph Poole, a member of this Board, a delegate to said convention, and I am glad to be able to inform you that his report and such suggestions as he may have to make, will be laid before you at this meeting.

In my last annual report I called the attention of the Board to the importance of a further geological survey of the State, but there being no Legisiature in session, nothing could be done to further this important object. Important investigations and discoveries since that time, demand with increased earnestness the necessity and importance of such investigations. The value and extent of our rich beds of coal and iron is beyond the expectations of the most sanguine. Besides, at this time there are four important lines of railroad built, and in course of construction, running directly through this extensive bed of coal and iron, furnishing facilities for transportation, and inviting capital and skill from abroad; but the difficulties to which we formerly called attention, yet embarrass this branch of our industry. We have no competent and authorized agent, whose business it is to make the necessary investigations, and direct the capitalist from abroad who would inquire for the locality of these rich beds of coal and iron, nor even to correspond with persons abroad with regard to any of the resources of Indiana.

I earnestly hope that your honorable body will urge upon the Legislature the importance of establishing an agency, or office, from which the examinations and intelligence can be furnished to all inquiries, in a reliable and official form. It only remains for us to present to the public abroad the facts in regard to our mineral wealth, to place our State in the first rank among mining and manufacturing States, as it now is among the agricultural States. Indiana can not longer afford to trust this important matter to private enterprise. She should be at once placed in official correspondence with capitalists abroad. Her healthy climate, her fertile soil, her immense water-power, her cheap steam-power, her forest of valuable timber, and her inexhaustible mines of coal and iron, all demand it. This may be done without incurring much additional expense. A competent agent might be appointed, who should hold his office in this city, answer all communications or inquiries, make local geological examinations when required, and analyze such minerals, soils, etc., as may be necessary to the full development of our vast resources. This may all be done in a few years by an annual appropriation of from three to five thousand dollars. I therefore earnestly recommend that a committee be appointed, on the part of this Board, to confer with the Legislature upon this subject, and such others as you may desire.

In treating of our immense coal-fields, the natural inquiry of many will be, does not petroleum in large or small quantities exist somewhere contiguous to these coal-beds?

Perhaps I can not answer this important inquiry better than to insert a brief history of the artesian well at Terre Haute, as furnished me by a prominent citizen of that city:

" Some three years since, Mr. Rose, a public-spirited citizen of Terre Haute, commenced the boring of an artesian well within the corporate limits of that city, for the purpose of procuring a supply of fresh water. The auger went first through gravel, sand and stone, and many valuable seams of coal, to the depth of twelve hundred and seventy-six feet, at which oil in large quantities burst from the mouth of the well, and flowed freely for many days. But as Mr. Rose did not want, and seemingly would not have oil, the oil was tubbed off, and the auger was again sent down, and at the depth of sixteen hundred and twenty-nine feet another vein or reservoir of oil was struck, and flowed steadily for many weeks, until hundreds of barrels of crude petroleum were secured. But the oil was again tubbed off, the auger was sent further down, and at the depth of seventeen hundred and eighty-five feet a large vein of sulphur water was found, and the well has ever since flowed with a pulsating stream of sulphur water.

"This oil was sent to Cleveland to be refined, and many hundred barrels have since been returned to Terre Haute, and pronounced by the chemists of Cleveland and the citizens of Terre Haute, who are using it, to be of superior quality. Had the well been intended for an oil well, it is believed by experienced oilmen, it could have been made equal in productiveness to any in any of the States. The oil yields about ninety per cent. of first class merchantable oil, and proves beyond controversy that the outlay would have been a paying investment."

That this region of our State is an oil region, would appear to be proven by the sinking of this well.

Gentlemen, this meeting marks the close of another year's labor, and ushers in the new year with its renewed responsibilities and cares, The past year has been one of unusual interest and activity, and your continued success is a guarantee that your labors have been appreciated by a generous public. It only remains for this Society to be true to itself, true to the best interests for which it was organized, to maintain the dignity of your Association and its claims upon the solid, active, intelligent and moral men of the country. Have your fairs so conducted that the true men and women of our State will give us their influence, and your future is full of hope and rich with promise.

You have determined to hold your Fairs for a term of years upon your own beautiful grounds in the vicinity of this city. You should, therefore, make such additional improvements and embelishments as will make your grounds desirable and pleasant to visitors, and convenient for exhibitors. You should adopt the most rigid economy in your ordinary expenses, that your entire surplus may be spent in improvements and facilities to promote the comfort and convenience of those who may favor you with their presence.

I would also recommend that some plan be devised by which full reports can be received from the awarding committees. The simple fact published to the world that a certain animal, article, or implement has received the first premium, is shorn of half its value to the public unless the reasons for the awards are given by the committee, fully setting forth its merits. I am satisfied it would add very much to the value and usefulness of our annual exhibitions, and also to the transactions of the Society.

I would also recommend the appointment of certain standing committees on certain classes of industry. Say one on Agriculture, one on Live Stock, one on Farm Implements, one on Fruits, etc., whose duty it shall be to open a correspondence with the different sections of our State, ascertain the amount, the quality, and the market value of such productions, and report the result of such investigations to your honorable body. In this way much valuable imformation may be obtained for your annual reports, and for the guidance of the public.

Gentlemen, delegates from the various county and district societies of our State, I am happy to meet with so many of you who have assembled with us on this occasion. Many of you have accustomed yourselves to come up and join with us in our councils to promote the great industrial interests of our State. I have felt called upon to give you some account of the condition and prospects of your State Board of Agriculture for the year just past, with such suggestions and recommendations as I felt it my duty to make. May we not hope that your experience and co-operation will enable the Board to press onward to still greater usefulness, in offering such additional aid and encouragement to our agricultural and mechanical interests that the future history and exhibitions of the Board will afford yet stronger proof of the inate energies of our people, that we, as a State, have all the elements of success in all the branches of a well directed industry.

In drawing my official labors as the presiding officer of your Society to a close, I feel that I could not discharge my duty to my own heart if I did not tender my sincere thanks to the members of this Society for their uniform kindness and courtesy to me during my whole term of service. I shall always consider my associations with this honorable body as amongst the most pleasant of my life. The meetings of our Board have been harmonious and agreeable, and I must be permitted to bear testimony to the efficiency and fidelity with which you have discharged your trusts.

To the officers of your Society, your Secretary, Treasurer, and Superintendent, who have been more intimately connected with me, I tender my sincere acknowledgments for their uniform and hearty co-operation during the year. To your Secretary you are mainly indebted for the gratifying success you have achieved during the past year. He seems not to have omitted anything that would conduce to your success. He certainly merits, and doubtless will receive the approval of the Board.

Hoping, gentlemen, that each of us may carry to our homes pleasant recollections of this interview, and bear with us the determination that this great interest shall never flag, and that our own beloved Indiana shall never be excelled in all that constitutes her wise, great, and happy. And may the blessings of a kind Providence rest upon us.

A. D. Hamrick, *President.*

The Secretary then presented his annual report, which was read as follows:

SECRETARY'S REPORT.

Mr. President, Members and Delegates of the
Indiana State Board of Agriculture:

Gentlemen—I herewith submit my report for the year 1868, ending January 1, 1869, containing the financial transactions of the Board during the year just closed; the matters of business that necessarily come before this meeting, with such recommendations as in my opinion should at this time command the attention of the Board:

FINANCES.

The Treasurer, Carlos Dickson, is chargeable with the following sums of money received during the year:

1868.

January 8.	To amount on hand at last report	$13,197 44
January 30.	To amount received from State, balance on printing reports for 1867	1,000 00
April 15.	To amount received from State, annual appropriation	1,500 00
May 15.	To amount collected on Charles Helwig's note	42 95
July 3.	To amount received on city subscription	1,000 00
July 3.	To amount received of Secretary on citizens' subscription	150 00
July 31.	To amount received on sale of old lumber	57 50
Sept. 9.	To amount received of Secretary on citizens' subscription	805 00
Sept. 21.	To amount received of Secretary on citizens' subscription	501 66
Sept. 26.	To amount received of Secretary on citizens' subscription	284 65
Sept. 26.	To amount received on sale of old lumber	105 25
Sept. 30.	To amount received of Superintendent, citizens' purse	200 00
October 3.	To amount received, interest deposit in bank	139 72
October 6.	To amount received for eating stands, booths, shows, etc.	1,346 75
October 6.	To amount received on ten per cent. entry fees	2,702 45
October 6.	To amount received on sale of tickets	14,096 55
October 6.	To amount received of Secretary on citizens' subscription	250 00
Nov. 6.	To amount received of Peru & Indianapolis Railroad	184 80

Nov. 21.	To amount received of Bellefontain Railroad	277 20
December 18.	To amount received of Secretary on citizens' subscription	170 98
December 31.	To amount received of C. Dickson, interest	133 89
	Total receipts	$38,146 79

EXPENDITURES.

1868.		
October 3.	By amount of cash premiums, live stock department	$5,051 00
October 3.	By amount of cash premiums, agricultural department	823 00
October 3.	By amount of cash premiums, mechanical department	777 00
October 3.	By amount of cash premiums miscellaneous department	436 00
	Total cash premiums	$7,087 00

MEDALS AWARDED—LIVE STOCK DEPARTMENT.

Six silver medals, thirty dollars each		$180 00

MECHANICAL DEPARTMENT.

Three gold medals, one hundred dollars each	$300 00	
Nineteen silver medals, thirty dollars each	570 00	
Twenty-two bronze medals, twenty dollars each	440 00	
		$1,310 00

MISCELLANEOUS DEPARTMENT.

One silver medal	$30 00	
One bronze medal	20 00	
		$50 00
Total value of medals awarded		$1,540 00

One hundred and eighty eight diplomas, ten dollars each		$1,680 00
Total premiums awarded, cash medals and diplomas	$10,307 00	

There yet remains on the books, cash premium orders, uncalled for, as follows:

Agricultural department	$25 00	
Mechanical department	44 00	
Miscellaneous department	2 00	
		$71 00

Cash premium orders forward	$7,087 00
Mileage and per diem of members	2,601 81
Officers' salaries	1,600 00
Expense of printing	631 05
Expense of printing agricultural reports, balance of 1867	1,000 00
Expense of permanent improvements on fair grounds	12,382 55
Expense of repairs on fair grounds	1,238 89
Expense, incidental	699 34
Expense of stationery	409 27
Expense of engraving medals, 1867	54 00
Expense of medals, 1868	409 90
Expense of geological cabinet cases	763 63
Expense of furniture	58 90
Expense of fair	785 60
Expense of Superintendents, police, gate keepers, committees, and laborers at fair	1,386 55
Expense of clerks	571 00
Total expenses	$31,679 59
Total receipts	$38,146 79
Total orders drawn	31,676 49
Balance	$6,467 30
Old orders of previous years redeemed	414 70
Net balance in treasury Jan. 1, 1869	$6,052 59

RECAPITULATION.

Total receipts of the year........	$38,146 79	
From which deduct amount on hand at last report............	13,197 44	
Net receipts of the year......		$24,949 35
Total expenses of the year.......	$31,779 49	
From which deduct permanent improvements	12,382 55	
Debts of 1867 paid	254 00	
	$12,636 55	
Net expenses of the year........		19,042 94
Net gain on this year's transactions..........		$5,906 41

I herewith present the proper vouchers for all orders drawn during the year, with register of the same, together with the Treasurer's receipts and other papers for reference.

GEOLOGICAL CABINET.

At the last January meeting of this delegate Board, the matter of a geological survey of the State was discussed at considerable length, both by the President in his annual address, and by delegates, but I will only allude to the cabinet and cases for its display and preservation. I fully explained the condition of the cabinet at that time, and, on motion of Mr. Williams, of Knox county, a committee was appointed, consisting of Messrs. Williams, Danaldson and Poole, to wait upon his Excellency, Governor Baker, and urge upon him the great importance of the necessary room for its preservation and display. The following communication was received from the Governor in reply to the committee:

STATE OF INDIANA, EXECUTIVE DEPARTMENT,
INDIANAPOLIS, Jan. 9, 1868.

Hons. J. D. Williams, Joseph Poole, and W. C. Danaldson,
Committee, etc.

GENTLEMEN—Your communication of this date, transmitting preamble and resolutions of the Indiana State Board of Agriculture, passed at its present session, in relation to the fitting up of the room in the State House heretofore occupied by the Supreme Court, with suitable cases. etc., for the deposit and safe keeping of such minerals, soils, ores, fossils, sketches, etc., as may be collected by the State Board, has been received.

I fully acknowledge and appreciate the importance to the industrial interests of the State of affording to the State Board all facilities for the performance of its work to which you allude in your communication, and in the accompanying preamble and resolutions. I regret, however, that there is no appropriation at my disposal which I could properly apply to such a purpose. I therefore request that you will yourselves procure the necessary cases and other furniture and fixtures for the purposes aforesaid, upon the assurance that I will, at the next meeting of the General Assembly, reçommend that an appropriation be made to the State Board sufficient to cover the expenses which may be thus necessarily incurred.

I have the honor, gentlemen, to be,
Very respectfully,
Your obedient servant,
CONRAD BAKER
Lieut. Gov. of Indiana, acting as Governor thereof.

Upon this assurance of the Governor the necessary cases and fixtures were ordered by the Board, the net cost of the same amounting to eight hundred and fifty dollars. And to day gentlemen, you have before you a geological cabinet not excelled as a public cabinet in the West, and many specimens are being received, and, in time, if sufficiently encouraged, will be of great interest and value.

The following circular letter was issued from this office in June last:

ROOMS STATE BOARD OF AGRICULTURE,
INDIANAPOLIS, IND., June, 1868.

To the Citizens of Indiana:

It is the object of the State Board of Agriculture to promote the whole industrial interests of the State, and not alone the agricultural. To this end they invite the co-operation of all, who can in any way contribute to the advancement of her material prosperity.

The rooms of the Board in the State House have been newly and handsomely fitted up and furnished with cases for the reception of such specimens of soils, marls, clays, building and other useful stones, ores, coals, fossils, and in fact every description of geological or other specimens that may serve to enlighten not only our own citizens but also the vast number of persons from other States who visit them, as to our great mineral resources.

We invite contributions of geological specimens, accompanied by statement of the location and situation, with reference to the underlying and overlying soils, clays, sands, rocks, etc., etc., and other material circumstances as to quality and quantity; also specimens of manufactured iron, hydraulic and quick lime, fire brick, tile, and other clay wares, etc., etc., with the donor's name, and the name of the person or firm manufacturing the same.

By this means we expect to arrest the attention of capitalists and artisans to the immense undeveloped sources of wealth in which the State so richly abounds, and thus invite them hither to invest their means and skill.

Our sister States west of us, with no greater advantages of soil, climate or mineral wealth, are making gigantic strides in growth, both of population and wealth, by the indefatigable persistence with which all the resources they do possess are "kept before the people," and thus capital and skilled labor are induced to go to them, while we, for want of such effort, leave our vast agricultural and mineral resources unknown and unworked.

Small specimens may be sent by mail and large ones by express, at the expense of the Board. Very large specimens are not desirable, except when necessary to show some fossil or other formation as a whole.

Very respectfully,

A. J. Holmes, *Secretary*.

This circular was copied into many of the papers throughout the State, and we have now almost daily visitors from our own and other States to examine the specimens, all speaking in the highest terms of the great mineral wealth of Indiana, and the interest manifested by the State Board in the display of the minerals of the State.

ZOOLOGICAL CABINET.

This Board was at one time the possessor of a case of stuffed birds, and, at the time of fixing up the cabinet-cases, a case was also prepared for a zoological collection. At the time the mineral specimens were brought from the cellar, the case of birds could not be found, either having been entirely destroyed or carried away, hence our case to-day remains empty. An annual expenditure of from one-hundred and fifty to two hundred dollars, for say two or three years would fill this case, and make it also an attractive feature of our State Board rooms.

There are several experienced taxidermists in the State who would not only be willing to assist, but would contribute of their time and experience in fitting up a splendid case as a matter of State pride.

LIBRARY.

Upon the completion of the cases in this room, I determined to endeavor to build up a library of such agricultural works, other State reports, statistics, periodicals, etc., as would add the necessary information to this office and become a source of information to the public. Quite a number of volumes have been collected through various sources, but I wish to acknowledge the receipt of the following:

Hon. O. P. Morton.—One hundred copies (for distribution) of the report of the Commissioner of Agriculture for 1866.

Hon. T. A. Hendricks.—Three hundred copies (for distribution) of the report of the Commissioner of Agriculture for 1865, and five hundred copies of the same for 1866.

Hon. M. C. Kerr.—A full set of the Eighth Census of the United States for 1860, bound, including population, agriculture, manufactures, and miscellaneous and mortality statistics.

Hon. Schuyler Colfax.—A full set of Agricultural reports from 1850 to 1862, inclusive.

Gen. W. H. H. Terrell.—Six volumes of the Adjutant General's report of the State of Indiana, bound, in calf.

Board of Commissioners, Central Park, New York City.—The annual report of said Board.

John H. Klippart, Corresponding Secretary of the Ohio State Board of Agriculture.—One dozen copies of the Ohio Agricultural Reports for 1866, and one and a half dozen for 1867. Laws of Ohio, Session of 1868.

John P. Reynolds, Corresponding Secretary of the Illinois State Board of Agriculture.—Eighteen copies of the Illinois Agricultural Reports for 1867.

J. M. Shaffer, Corresponding Secretary of the Iowa Agricultural Society.—Six copies of the Iowa Agricultural Reports for 1867.

L. D. Morse, Corresponding Secretary of the Missouri State Agricultural Society.—Six copies of the Missouri Agricultural Reports for 1867.

Swamsea Agricultural Society, Swamsea, Mass.—One volume of 1862, and one volume of 1867, of the Massachusetts State Agricultural Reports.

Dr. T. A. Bland, Editor Northwestern Farmer.—One bound volume of the Farmer for 1867, and one volume Monthly for 1868.

CLAIM AGAINST THE STATE.

Under the laws incorporating the Indiana State Board of Agriculture as a body corporate, it is made the duty of the Governor to furnish suitable rooms etc., for the Board and the Geological Cabinet. In the year 1862 the rooms in the State House were needed for military purposes, and hence the Board was compelled to vacate them. The State paid the rent of a room in Hubbard's Block until January, 1864. Therefore, the following claim is due and owing from the State:

1864.		
January 10.	To expense of moving safe and office from State House to Hubbard's Block	$35 00
1866.		
January 10.	To rent paid for use of room in Hubbard's Block, for 1864 and 1865..	150 00
January 10.	To expense of moving safe and office from Hubbard's Block to Yohn's Block.................	35 00
1867.		
January 10.	To one year's rent of office in Yohn's Block....	300 00
January 10.	To expense of moving safe and office from Yohn's Block to New's Building....................	35 00
March 27.	To rent three months in New's building	37 50
March 27.	To expense of moving from New's building to State House........	30 00
	To expense in fitting up Cabinet cases in room now occupied by the Board, by order of the Governor....	815 00
	Total....................	$1,437 50

Steps should be taken to have this claim presented and its payment urged upon the proper authorities.

FAIR GROUNDS.

The improvements upon the Fair Grounds during the past year are of such a permanent character, and the new building erected in so substantial a manner, but little repairs are necessary for this year. I will, however, recommend the building of a new

FLORAL AND FRUIT HALL.

Outside the track, and the removal of the old one in front of the Amphitheatre. The cost of this new Hall and all necessary repairs will not exceed $3,000 unless the Board should determine to erect some new booths, which would add greatly to the appearance of the Grounds and also become a source of revenue to the Society.

INSURANCE.

I believe no good business man suffers his property to remain without insurance, and hence I consider it gross neglect on the part of the Board to suffer the new and permanent buildings to remain without it. The cost would not exceed one per cent.—$75 per annum—and would be money well-expended.

TEN PER CENT. FUND.

In my recommendation to abolish the ten per cent. entry fee, I expect to take issue with some of the older members of the Board. We are the only Agricultural Society that still continue the collection of this fee. Ohio, Illinois, Michigan and Kentucky have all thrown it aside and invite free competion at their Fairs. Although the per cent, received in 1867 amounted to $3,317 05, and in 1868, to $2,702 45, yet I am convinced that it works to our great disadvantage. In my visit to the Ohio State Fair, held at Toledo, and to the Kentucky State Fair, held at Louisville, I made inquiry as to the result of this change, and each officer gave it as his opinion that it was a great improvement over the entry fee plan. It certainly has a great tendency to reduce the number of entries at our exhibitions. The entries at the Ohio State Fair in 1868, numbered over 3,600, while at our State Fair less than 1,500, while our premiums were in the aggregate larger than those of Ohio. I admit that $2,700 is a large sum of money, and aids much in the financial transactions of the Board, but consider the great dissatisfaction caused thereby, standing alone in this matter as we do, and the number of free passes given to exhibitors and their help on account of the entrance fee, and the accounts will nearly balance. Should it be asserted that we in Indiana are not a progessive people, it would be considered an insult, but does not this old fogy plan warrant the truth of the assertion? I think I can safely promise should the ten per cent. fee be abolished, that the number of entries at the next fair would be douled, and as the number of articles on exhibition is increased, so will the interest of the citizen, and the receipts of the fair be correspondingly increased.

RAILROAD PAYMENTS.

But two of the railroads have paid their installments due the State Board November 1, 1868, on account of the purchase of State fair grounds, to-wit:

Indianapolis and Bellefontaine Railroad	$227	20
Indianapolis and Peru Railroad	184	80
Total	$462	00
There is yet due from the Cincinnati and Indianapolis Railroad	$277	20
Lafayette and Indianapolis Railroad	184	80
Jeffersonville and Madison Railroad	184	60
Total amount due	$646	80

CITY AND CITIZENS' SUBSCRIPTION.

At the March meeting of the Executive Committee of the State Board, Mr. Poole offered the following resolution:

Resolved, That A. J. Holmes be, and he is hereby, appointed a committee to canvass the City of Indianapolis and obtain donations by subscription, payable in three annual payments on the first day of September, 1858, 1869 and 1870.

And resolved further, That should a sufficient amount be raised, the State Board will locate the State Fair upon the State Board's grounds for the next three years.

Which was adopted.

In pursuance of the above resolution, I thoroughly canvassed the city and obtained subscribtions from citizens, to the amount of eight thousand three hundred and eighty-six dollars and ninety-five cents, ($8,386 95,) payable in three annual installments according to the above resolution. Of this subscription, eleven hundred and twenty dollars is considered worthless, the parties having either failed or moved away. Of the subscription, the sum of two thousand one hundred and sixty-two dollars and twenty-nine cents, ($2,162 29,) have been collected and paid over to the Treasurer. The *Citizens' Street Railway Company*, which doubtless made more money out of the Fair than all other subscribers, refuse to pay their subscription. The claim has been put in the hands of our attorneys, *March and Perkins*, and will be prosecuted with vigor until collected. The City Council appropriated the sum of three thousand dollars payable as follows: $1,000 July 1, 1868, which has been received; $1,000 July 1, 1869, and $1,000, January, 1870. Making a total reliable subscription of $10,266 95, of which $3,162 29 has been paid as. reported by the Treasurer.

AGRICULTURAL REPORTS.

I have the pleasure of laying before the Board the tenth volume of the Agricultural Reports of our State, containing the proceedings of the Board in full, and the premiums awarded in 1868. The mechanical and typographical execution of the work is not excelled by any State Agricultural Reports in the Union, and the promptness in laying this report before the public renders it of still more value. Illinois and Iowa are the only Western States that have their reports for 1867 before the public, while ours are at least ten months in advance of any other State. In the distribution of the edition of 1867, many of the Societies and officers to whom they were sent desired a greater supply and to show the avidity with which they were sought, I will say that many of them offered to pay for extra copies. This volume, (1868,) contains some valuable essays on the cultivation of corn and wheat, propagation of the grape, and on the important question of the cattle-plague, which will, doubtless, be read with great interest. Quite a number of copies have already been solicited, and I am convinced that the edition, like that of 1867, will be found entirely too small. I have embellished the report to some extent, and here wish to acknowledge the kindness of the Editors of the Northwestern Farmer for the use of cuts. Permit me in conclusion to return to the officers and members of the Board my most sincere thanks for their kindness and co-operation in the discharge my duties during my official term.

Respectfully submitted,

A. J. HOLMES,

Secretary.

The Secretary having concluded the reading of his Report, on motion of J. D. Williams, the subject matters therein contained, were referred to the several appropriate committees.

A special committee consisting of Prof. E. T. Cox, A. C. Stevenson, and N. O. Ross, were appointed, to whom was referred that part of the Secretary's Report in reference to Library and printing Agricultural Reports.

The Treasurer, Carlos Dickson, then presented his Annual Report as follows, which was referred to the Committee on Finance.

TREASURER'S REPORT.

Carlos Dickson, *in account with*
Indiana State Board of Agriculture.

1868. DR.

RECEIPTS FOR 1868.

January 8.	To cash on hand....	$13,197 44
January 30.	To cash received from State Treasurer on account of appropriation for printing agricultural reports	1,000 00
April 15.	To cash received from State Treasurer for annual appropriation.............	1,500 00
May 15.	To cash received from Chas. Helwig, subscription in 1860..	42 95
July 3.	To cash received from Indianapolis City Appropriation	1,000 00
July 3.	To cash received from sale of old lumber.	57 50
July 3.	To cash received from city subscription..	150 00
July 26.	To cash received from sale of old lumber..	105 25
Sept. 9.	To cash received from city subscription..	805 00
Sept. 21.	To cash received from city subscription..	501 66
Sept. 26.	To cash received from city subscription..	284 65

Sept. 30.	To cash received from J. B. Sullivan, for citizens' purse....	200	00
October 3.	To cash received from Indianapolis Insurance Company for interest..........	139	72
October 6.	To cash received from city subscriptions.	250	00
October 6.	To cash received from eating stands, shows etc.	1,346	75
October 6.	To cash received from 10 per cent. entry fees	2,702	45
October 6.	To cash received from sale of 52,549 gate, and 9,593 amphitheater tickets.....	14,096	55
November 6.	To cash received from Peru Railroad Co. for 9th annual payment due on fair grounds	184	80
November 6.	To cash received from Bellefontaine Railroad Co. for ninth annual paym'nt due on fair grounds...	277	20
Dec. 19.	To cash received from city subscriptions..	170	98
Dec 30.	To cash received from C. Dickson for interest...........	133	89

DISBURSEMENTS.

January 1.	By cash paid general expense warrants	$24,914 20
January 1.	By cash paid premium warrants.	7,180 00
January 1.	By cash on hand	6,052 59
		$38,146 79
January 1.	To cash on hand	$6,052 59

C. Dickson, *Treasurer.*

The General Superintendent, John B. Sullivan, presented his report, as follows:

SUPERINTENDENT'S REPORT.

Hon. A. D. Hamrick, President, and Members of the Indiana State Board of Agriculture:

Gentlemen—I have the honor to report that I have received and expended on account of construction and repairs on fair ground, $1,787 98. About $1,100 of this sum was for grading and repairs of time track, and filling privy vaults and ditches; for moving fair ground fence, $161 28. The residue was expended for sundry small pieces of work, which are fully explained in my receipts, to which your attention is directed.

I would ask respectfully to recommend—

1st. Either the thorough repair, or rebuilding of the bridge over the ditch at the south-west corner. Also the bridges over the ditch within the enclosure. This work should in the main be accomplished before the spring rains, as high water would seriously damage the banks at the main and north bridges.

2d. The planting of additional shade trees. These should be planted in early spring, and the best *varieties* selected.

3d. The changing of the hall used last year for carriages and wagons, back to a dining hall, for which this building was originally constructed, and to which purpose it is admirably adapted.

4th. The grading under the Amphitheater and Fine Art Hall should be raised as high as the brick work supporting the several posts. This is demanded in order, first, to properly protect the brick foundations, and second, to give an even grade; for this purpose there is an abundance of spare earth and sand on and along the banks of the ditch, either inside or outside of the grounds. The space under the rear of the Amphitheater thus graded would make an admirable place for the exhibition of all classes of farm implements, and it seems to be but illy suited for any other purpose.

5th. The removal of the old Floral Hall from within the circle of the time track.

6th. The extension of the picket fence at the west end of the Amphitheater some 400 feet farther west.

7th. The general surface of the ground is very uneven and rough, as it was left at the close of the war, and should be thoroughly graded and leveled.

8th. The present arrangement for ladies' dressing room and water closet should be changed, as last year it was found to be very objectionable and unpleasant on account of the close proximity of the latter to the former, and the unpleasant odor therefrom. The water closet should be moved to the rear at least 20 feet, and well inclosed by a tight board fence, and leaving an aria between the two buildings.

All of which is respectfully submitted.

JOHN B. SULLIVAN,
Gen'l Superintendent.

On motion the Superintendent's Report was referred to the Committee on Finance and Fair Grounds.

Dr. McConnell presented the following, which was unanimously adopted:

WHEREAS, The room in the State House heretofore occupied by this Board was required for military purposes during the late war, compelling the vacation thereof by the Board, and resulting in the loss of a portion of the Geological Cabinet, and other articles of value and interest to the Board, and,

WHEREAS, His Excellency, Governor Baker, has manifested his appreciation of the objects and approval of the efforts of this Board to promote the industrial interests of the State to the extent of his official power, and has afforded us every facility to this end by providing the elegant rooms now occupied by the Board, and by his assurance that he would recommend to the Legislature appropriations to cover the loss incurred as above stated, Therefore,

Resolved, That our thanks are hereby tendered Governor Baker for his official kindness and favor in this regard.

Resolved, That the Secretary be directed to transmit the Governor a copy of the foregoing preamble and resolutions.

Dr. Allen Furnas, from the Horticultural Society, invited the Board to attend their meeting in the afternoon and listen to an address to be delivered by Dr. John A. Warder, of Cincinnati, Ohio. Which invitation was accepted.

Mr. Poole, Esq., made a lengthy report as Commissioner from Indiana, by appointment of the President of the Board, to attend the Cattle Convention at Springfield, Illinois, December 1, 1868, to investigate the cause of the disease among cattle, called "Texas Cattle Fever."

Board adjourned to meet at 2 o'clock, P. M.

AFTERNOON SESSION, 2 o'clock, P. M.

Board met pursuant to adjournment, the President in the Chair.

Mr. Williams presented the following resolution which was adopted.

Resolved, That the Committee on Premium List are directed to inquire into the expediency of abolishing premiums on horses for speed alone.

Mr. A. C. Stevenson offered the following resolution which was also adopted.

Resolved, That the sale of intoxicating liquors should be prohibited in or about the State Fair Grounds, as contemplated by the statutes, during the State Fair.

On motion of Judge Donaldson, the election of members of the Board was made the special order for Wednesday at 10 o'clock A. M.

The Board then proceeded to nominate candidates to fill the vacancies occasioned by retiring members as follows:

5th District—Benjamin North, Ohio county.
6th District—Thomas Mitchell, Rush county.
" " A. J. Draper, Decatur county.
8th District—Judge W. C. Danaldson, Parke county.
9th District—Hon. A. D. Hamrick, Putnam county.
10th District—Alexander Heron, Fayette county.
" " Train Caldwell, Fayette county.
11th District—William Crim, Madison county.
" " Dr. John C. Helm, Delaware county.
12th District—Joseph Poole, Esq., Fountain county.
13th District—John M. Turner, Grant county.
" " H. Caldwell, Wabash county.

Nominations having all been made, on motion of Dr. Stevenson, of Putnam, the Board went into Committee of the Whole, on the report of Joseph Poole Esq., Commissioner to the Springfield Convention, on the Texan cattle plague.

The appointed hour having arrived, the Hon. Anson Wolcott was introduced and delivered the following address:

ADDRESS OF HON. ANSON WOLCOTT,

BEFORE THE STATE BOARD OF AGRICULTURE, AT INDIANAPOLIS, JANUARY 5, 1869.

Gentlemen of the State Board of Agriculture:

In accepting your kind invitation to address you at this annual meeting of your Association, on the extremely short notice allowed me for preparation, brevity and generality must characterize the address.

Man, when found in his primitive condition, subsists mostly upon the precarious results of his rude pursuit of fish and game. Population is sparse from the lack of the means necessary to its support, and life is but a struggle for existence—a struggle so extremely desperate that, while thousands perish from starvation, man himself often becomes the food of man. Life and its few possessions are held by such uncertain tenures that anything approaching a settled order of society is impossible; and, for generation after generation, savage succeeds savage, without development or improvement. It is not till man begins to practice the arts of agricultural industry, the care of flocks, and the raising and storing of crops, that he begins to develop as a civilized being. In civilized society, therefore, agriculture is the fundamental and most important of all human interests. The pastoral life is in a degree agricultural; for man exercises his "dominion over the beasts of the field" by his provident care of them. And the pastoral life, semi-agricultural as it necessarily is, is also but a life of semi-civilization.

Civilization, for its best development, requires that men possess fixed abodes and permanency of possession, and that full abundance of the supply of food, which can be obtained only by the successful tillage of the soil. Man's absolute physical necessities must be supplied before he can accomplish anything. The supply of his daily demands for food is the condition not of health alone, but of life itself. Not until this primal necessity is satisfied can he even devote his efforts to the production of the fabrics which constitute his apparel, or to the erection of any kind of structure to shelter him from the inclemencies of the weather. And before, on any extended scale, and as permanent pursuits, he can devote his time and efforts to any of the multitude of devices designed for the comfort, convenience and embellishment of life, his supply of food, the first necessity of his existence, must be abundant, and reasonably certain. Necessarily, therefore, before any high development of man in civilized life can be obtained, the agricultural interest must be established on a permanent footing and be flourishing. More than this, the history of the present century, the most enlightened, the most moral, and most christian age human chronicles have yet furnished, proves by the various conditions of the different classes which in each nation constitute the aggregate of its people, that the vices and crimes, the amenities and virtues among men are, in a material degree, graduated by the supply of food. In both ancient and modern times, the food riots of the great cities, the fierce turbulence of famishing humanity, have been so violent as to shake the pillars of government; while the effect of those occasional famines which have afflicted particular localities has been to disorganize all social relations.

The history of penury and want, the world over, is a history of physical degeneration and of mental and moral debasement. High as a man stands in the order of creation he is yet a compound of the physical as well as spiritual; the spiritual manifested through physical organisms, and dependent upon them: and in this condition of physical necessities, urgent and imperious; and mental and moral dependencies thereon, man's best development can not be attained if there exist the condition of bodily want and destitution.

The farmer, then, the great food producer, occupies a first and indispensable place in the economy of civilization. But it is not alone as a producer of food that the agriculturist stands at the head of those engaged in the useful pursuits of practical life. Standing in the order of our most immediate and urgent requirements, first in food, and next in clothing, and the agriculturist supplies the hides, the wool, flax, and silk of which our various vestments are fabricated, conferring bodily health and comfort, and adding immensely, to our capacity for endurance and labor. Nor are the productions of the farmer limited to food and raiment. They are found as important elements in a large portion of our most useful manufactures. The paper upon which we write, and upon which our books are printed, the approved media for the transmission and preservation of knowledge, finds its first or raw material in the products of the farm. In short, to the farmer the human race is indebted for its primary necessities almost exclusively, and for a large portion of that which is of secondary importance. Without the farmer as the foundation class of society, all the higher pursuits would perish, and man, as a creature of civilization, would cease to exist; as everything desirable and excellent in man's existence depends upon the supplying of his inherent inevitable necessities. Whether we view this great subject as mere utilitarians, seeking the best means of promoting man's physical comfort and happiness; as political inquirers, searching for the agencies by which the most orderly state of society may be attained and preserved; as lovers of knowledge, looking for the conditions necessary for man's highest and most varied culture; or, whether as moralists and Christians, having in mind the philosophy of Christ's feeding the hungry multitude to which he was preaching, the agricultural interest appears to be the great and vital interest of the human race, and as such, entitled to the highest consideration that can be bestowed upon it. Accordingly, we find that all wise lawgivers, and all prudent governments since the dawn of civilization, looking upon agriculture as the fundamental interest of society, have recognized it by laws intended for its encouragement and development.

Agriculture, in its nature an independent and self-sustaining pursuit, may be greatly advantaged by discriminating legislation; though the fashion prevails at the present day of bestowing the favors of legislative encouragement more especially upon manufacturers and commerce; both of great importance, but less important than husbandry, for an abundant supply of life's immediate necessities is, beyond doubt, the highest interest; and, indeed, the only really perplexing political problem of the densely populated countries of Europe is, the means of furnishing adequate supplies of food for their people.

Benefitted as agriculture so well may be, and so highly deserves to be, by the fostering care of Government; yet its main reliance for a more perfect developement and progressive success must be on the intelligence and enterprise of those engaged in Agricultural pursuits. Almost valueless will be the effect of governmental interposition, as regards the welfare of our whole people in any of the practical interests of life, unless there exist earnestness, perseverance, culture and capacity on the part of the individuals representing the interests sought to be benefitted. To man, through his intellectual endowments and favorable physical organization, has been given dominion over the whole of nature's broad domain, so far as he is brought in immediate relations with it; but it is upon the inexorable condition, that he dilligently employ the wonderful gifts that have been bestowed upon him. As it was said in olden time, "the gods help those who help themselves," so it yet continues, and success attends only upon effort.

The great practical need of the farming interest at this time is a more general diffusion of scientific and experimental knowledge. In this utilitarian age, when nature is revealing her long hidden secrets to man's inquisitiveness, by unlocking her stores of knowledge to his importunity, the developements in agricultural science and art, though great and material, yet seem far short of the developments in other pursuits. Still the field is as broad, and the means of progress as abundant.

The productive capacity of the different elements, gasseous and mineral, which enter into vegetable growth, is beyond any power of man to compute, and would suffice for the abundant support of a population ten or twenty times as dense as the earth now bears.

It is a special province of man's skill in husbandry so to regulate the great natural forces of vegetable life and growth in their action, as to make them most highly productive of things necessary and useful. Most of these have but limited natural adaptations, and possess less vital energy than the vigorous, indigenous, but worthless vegetation, that everywhere springs into life under the influence of light and heat, but which, by the labor, skill and tact of the husbandman, the useful must be made to supercede.

To accomplish, in agriculture, all that may be done, with profit and advantage, requires a knowledge of the composition of soils, the climates, seasons, habits, vital processes, and various necessities of vigorous vegetable life, each according to its kind. All this known, man's ingenous care and skill will secure to each its necessary and most favorable conditions; and the natural products of nearly all climates and soils may be enjoyed in that which we alone inhabit. While those productions native to the region, being sown not "by the wayside, nor upon stony ground, nor yet among thorns," but in due season, on lands in all respects well and properly prepared, will spring up and yield their thirty, their fifty, and their hundred fold.

This pre-eminently useful field for the exercise of man's faculties, is as broad as the range of his highest powers. The most learned in science, and the most profound in philosophy, may exhaust all their stores of learning and knowledge and not arrive at the end of all that is profitable to be known in agriculture. Unfortunately for the best interests of society, in the minds of many people, agriculture is held in less esteem than other pursuits, really requiring less capacity, which are far less useful and which render less certain retuns for the labor and capital employed in their prosecution. This false and under estimate of the dignity, independence and utility of farming as a profession, annually sends thousands of ambitious but inexperienced young men, the sons of farmers, away to other occupations; depriving the farming interest of many of the finest minds, which we might suppose were born to become the ornaments and best illustrations of the agricultural class. However much it may be under-valued by the unthinking, agriculture is the most independent, dignified and noble of all pursuits.

The true standard of greatness is the greatest usefulness. Merit alone is the test of all true values. Let us hold him in highest esteem who, combining moral worth, mental culture and industrious application, shall, more than any other, contribute to the highest development and happiness of his fellow-men. And as we apply this standard to individual excellence, so may we also deservedly apply it to man's first, last, highest, most earnest, most useful, and most necessary pursuit—agriculture.

The views thus briefly presented, and which might, from their importance, well be multiplied into a voluminous essay, are not the only ones connected with this subject deserving especial notice. It is in the free air of the country, in healthful country exercises, that the best physical constitutions are established; and in the purity of country life and its associations, that the staunchest moral characters have their formation. Though the cities have often been the theaters in which good and great minds have displayed their beneficient and vigorous abilities, the country has generally been their place of origin. The indolent, luxurious and enervating habits of city life appear fatal to the production of gifted and noble natures. With here and there a solitary and marked exception, it has been in the quiet, temperance and purity of country life, in the midst of the beauties, harmonies and grandeurs of nature that have been matured the men who have become prominent for greatness and goodness, the teachers, leaders and benefactors of their race. The rural pursuits of country life, with their unaffected and guileless associations, have been the cradle rockings of the best germs of humanity. Let us appreciate the great importance, the exalting influence of the pursuits to which, as farmers, we are devoted; prizing as we ought our peculiar advantages; stimulating each other to better endeavors, and all uniting in the effort to render the farmer, now the most usful and necessary member of society, the most excellent in morals, and the highest in intellectual culture. Let our young farmers be as liberally educated as those who are to become lawyers, physicians and divines.

This elevation of personal character would instantly destroy the inferior estimation in which some are now disposed to hold the agriculturist. These broader and more developed qualifications will open to the farmer the avenues to those high and important positions in society and government in which he, more than any other, is interested, but to which, for want of proper culture, he rarely attains; leaving his peculiar interests to the guardianship of others, be they indifferent or even hostile. Had the farmer no other interest than that of his farm alone, its culture and management, his education and training might, with less impropriety, be limited and circumscribed, as they now too frequently are. But farmers are the most numerous of the body politic. As integral members of the Government they outnumber all others combined. As the subjects of the law, they count more than the whole community outside their own order. Yet how few do we find in the high positions of legislative, judicial and executive office. If the farmers, who constitute three-fourths of our political society, are subject to the control of the remaining one-fourth, whose fault but their own? Have not their most intellectually endowed children been most highly educated by them, and have they not then been sent to engage in other pursuits, depriving the farmers, as a class, of the brightest minds they have reared, and of the best culture they have bestowed? When the farmer himself shall regard his noble calling as one worthy to be followed by his most gifted and favored offspring, and the same talent and cultivated ability are devoted to it that are required for success in other respectable walks in life, then will the art of husbandry receive a more perfect development, and then will it be as much honored in name as it is indeed honorable in its nature.

I speak not thus to encourage discontent, but to inspire emulation. The best condition of man's social and civil existence is that in which all that is useful and that is embellishing in material or intellectual life, is most perfectly developed. Each separate excellence is but a distinct contribution to the completeness of the whole. Thus progressing, we approximate more and more toward that desirable perfection in our existence in the direction of which mankind are yet only in their pupilage.

Among the most proper, feasible and effective agencies by which may be reached the great and beneficent results of better knowledge for the requirements of agricultural success, are associations and organizations of the character now here represented. The whole field of observation and the whole range of experiment are not open to any one man, but to the many; and it is here, from all parts of the State, representing each branch and variety of the universal agricultural interest, that are to be gathered together the rich stores of many experiences. Here the unfortunate may learn the causes of his failure, and the successful means of more perfect success.

May your most worthy and useful organization receive from our State that encouragement and pecuniary aid worthy the important interests it represents, and that effective, voluntary co-operation of the farmers of Indiana, more valuable than all public endowments, and without which you can enjoy no real efficiency, and have but little ability to promote the welfare of the people.

At the conclusion of the honorable gentleman's address Dr. Geo. W. McConnell, of Steuben, offered the following resolution:

Resolved, That the thanks of the Board are hereby tendered to Mr. Wolcott for the able address to which we have just listened, and that he be requested to furnish a copy for publication in the next annual report.

Mr. Williams presented the following:

Resolved, That in the opinion of this Board, the Legislature ought to make a sufficient appropriation of money to make a thorough geological survey of the State.

Hon. Barnabas Hobbs, Superintendent of Public Instruction, addressed the Board in reference to the question of agricultural colleges, and agricultural education in the common schools, and asked the Board to take some action in the matter.

The President here introduced the Hon. Isaac Kinley, of Wayne county, who addressed the Board as follows upon the subject as presented by Mr. Hobbs, a copy of which was requested for publication by resolution of the Board.

AGRICULTURE IN THE PUBLIC SCHOOLS.

BY THE HON. ISAAC KINLEY.

It is true that the elementary works which must be employed for a time, at least, in the district schools, may not contain a great amount of theoretical science. They will, nevertheless, contain much of practical and useful knowledge. It is true, also, that their manifest usefulness will be a great incentive to study, and many a student, who would otherwise have been satisfied with the shallowest attainments, will be tempted thereby into the wider and deeper fields of science.

Teachers in the rural districts will universally attest that one of the obstacles in the way of introducing the more thorough sciences into their schools, is the belief, too prevalent, that there is no practical use in them. But the utility of agriculture, as a study, is so apparent that this objection will not be urged; or if urged at all, be easily overcome.

The objection that there are no suitable *text-books*, can be made only by those not familiar with agricultural literature or the progress of agricultural science. Several very valuable works have been written, some of which are especially designed as text-books in schools and colleges, and others that are well suited for such use. In this connection the works of Johnston are especially to be commended. Besides, in this, as in other things, the demand will bring the supply. Only let the want for such text-books be known, and a thousand pens will contest the privilege of supplying it. Every publishing house will have a new book on agriculture, designed for the use of schools. Their agents will visit the schools, the agricultural and horticultural societies, and your honorable body will be waited on with distinguished consideration. Competition will elevate the standard of these works, and the agricultural text-book will soon equal in learning, depth, adaptation for the school-room, and in every other excellence, the best works in other departments of education. Another objection sometimes urged is the want of qualified teachers. To this, it may be answered that the teachers of this State are an intelligent and enterprising class of citizens. Let it be established as a fact, that agriculture is to be taught in the public schools, and they will not be slow to add this to the list of certified qualifications to teach.

Again, it is objected that the pupil does not know what his future vocation is to be, and that he should, therefore, educate himself without special reference to any vocation. This objection is not true, in fact. Practically the future calling of the child is very early determined, and whatever theories there may be—whatever teachers may advocate to the contrary, the pupil actually does educate himself with reference to what he supposes will be his future avocation; and even the sturdiest opponent to this movement does not stand to his own theory. If a boy is to be educated for civil engineering, whatever else he may be taught, he is certainly trained in mathematics. If he is to be a theologian, he is certainly taught Greek and Hebrew, and carefully instructed in the opinion of the Fathers. And, generally, whatever he may intend his boy to follow, he will, despite his theories, cause his education to be warped into the character of his future pursuit. His general education may be more extensive—he may lay a larger foundation—than the student of the district school; but the fact remains, that whatever amount of general culture the boy receives, he is yet specially educated for his future life-work. The State itself has established a *legal* department in the State University, for the education of those who may wish to practice the law. This, then, being the rule, with hardly an admitted exception, that the child should be educated in reference to his life occupation, it is just that those who can not attend the higher schools of learning, should be deprived of its advantages. In the district schools the pupils receive a limited amount of *general* instruction, and, in my opinion, the public interests will be greatly subserved by giving them also the opportunity for *special* instruction.

It is again urged that Agriculture is so extensive a subject, that it will be difficult to know what amount of knowledge is necessary to fit one to teach. Properly considered this objection admits away some of the others that are sometimes pertinaciously urged. If the subject is thus extensive, the pupil who masters it, will have the *general* education so often set up in opposition to *special* education. And the argument so plausibly urged that it is better to make a *man* of the student than a farmer or mechanic; a lawyer, doctor, or preacher, finds itself completely answered in this objection itself. It might not be astonishing if even those who used this plausible sophism, should be compelled to recognize in the student who had mastered the agricultural sciences, a *man*, or mayhap a woman, in the highest and noblest sense of the word.

But is the extent of the science an objection to its study in the schools? People do not reason thus foolishly on other subjects. Who has been able to tell where the science of astronomy chemistry, or mathematics ends? The sciences in general, are like their great author, infinite. The profoundest philosopher has not the wisdom, nor even the shallowest pedant, the assurance to prescribe bounds to them; but do we, on this account, exclude them from the schools? The amount of knowledge necessary to teach agriculture will regulate itself, just as with the other sciences. It is not required that one should be a Silliman or a Draper to teach chemistry; or a Lyell, Miller, or Agassiz, in order to teach geology; neither is it necessary that one should be a Liebig, in order to teach agricultural science. Though in this, as in other subjects, the more knowledge one possess, other things being equal, the better teacher he will be.

In the several sciences, as taught in the schools, certain text-books have been prepared. Precisely so it will be with agriculture, and the teacher will be required to pass a reasonably good examination on the subjects therein treated. As on other subjects, whatever experience, observation, or other reading may add, will only increase the qualifications to teach. Observation, investigation, discussion would, from year to year add to the teacher's knowledge, and correspondingly elevate the standard of qualification. The knowledge which would have procured a certificate to teach *English Grammar* ten years ago, might not enable an applicant to pass muster to-day. This, too, would be progression, and the standard of qualification would be fixed to such an adjustable scale as always to meet the public demands.

One other, and I will have done with this side of the argument, which, I fear, I have already pursued to tediousness. This is the vague, ill-defined, sometimes wise, sometimes foolish objection, always ready, against any innovation. It is said to be *impracticable.* But why impracticable? If the introduction of agriculture, as a study, in the Public Schools will result in undouted good to the State, far surpassing all the additional costs and inconveniences,. this progressive, utilitarian, *go ahead* age will demand other evidence of impractibility than that of merely looking wise and ominously shaking the head.

Before the single power of utility, these flimsy objections will be swept away, and we shall live not only to see agriculture, but the sciences illustrative of all the industries, taught in the public schools. In that "good time coming," labor will be honored, and laboring men and laboring women, will take their places in public opinion, as they are now in fact, the real aristocracy of the State.

There was a time, and not long ago, when *book* farming, or *scientific* farming, was the standing jest of farmers. It was looked upon as a species of pedantry set up in opposition to experience. And it must be confessed that many were the men with heads chuck full of theories and poetry of the country, whose great promise and great failures gave point to the general joke. If, indeed, I were compelled to choose between theory without experience, and experience without theory, I should unhesitatingly take the latter, confidently expecting routine with habits of industry and strong muscles to win the race. For the farmer needs educated muscle as well as educated brain, and habits of industry, as well as habits of thought. No one should be foolish enough to suppose that theory of itself can produce great crops. It is theory applied—a skillful hand guided by a wise head, that must accomplish results.

The science of agriculture—a phrase used for convenience—is not one, but many sciences, or such parts of them as relate to and explain the practical operations on the farm. Agriculture, as a business, is by universal consent one of the oldest of human pursuits; and it would be paying a poor compliment to the tillers of the soil, to deny that anything more valuable than routine has been deduced from all the experience of the age.

The value of agricultural science is recognized by the Congress of the United States establishing an Agricltural Bureau, and the donation to each State of a portion of the public land for the purpose of establishing Industrial Colleges, in which Agriculture is to occupy a conspicuous place. It is further recognized in the fact that several Colleges have established departments of agriculture; but it will be generally and sufficiently recognized only when the Common schools of the State admit agricultural students, and teach agricultural science as a necessary part of a farmer's education. When this is done, we shall expect to see other industries along-side of it, and having equal advantage.

Now that Congress has made a valuable donation for the purpose of having agricultural science taught, its utility as a collegiate study is admitted, while it is denied that it may be introduced into the schools of lower grade. You may teach it in the colleges, but not in township schools. I cannot conceive of a proposition more sophistically absurd. Not more than one farmer's son in a thousand takes a collegiate course of study; and of those who do, the number is very small who return to the farm. I agree, however, that the introduction of a course of agricultural studies will greatly increase the number of farmer's boys who enter college, as well as the number of those who, after having graduated, will return to farming pursuits. But after making a liberal allowance for this, it must still always be true that only a very small per cent. of the whole people can ever have the benefits of a collegiate education. Whatever of agricultural science is taught to the great mass of the people, must be taught in the Common Schools. A few wealthy farmers will be able to send their children to the colleges; a few young men of great energy will work their way through the collegiate course; but the large majority, unless it can be taught in schools of lower grade, will be compelled to forego the advantages of agricultural instruction entirely.

The whole people should be educated in the knowledge and business of practical life. By denying the introduction of agricultural science into the district and township schools, those will be deprived of it who most need its advantages. In this country it is not the policy to segregate the lands into large proprietaries, and constitue the rural population of landlords and tenants. The policy is rather to subdivide into small estates. The farmer tills his own land. His boys take the place of hired help, and cannot be well spared from home. The district and township high schools are their only opportunities, and we should make these opportunities equal to their wants. To say that agriculture shall be taught, and yet not taught in those schools, is to deny the teaching of it when it can be the most beneficial. The hired man is capable of doing better services by having an agricultural education. He accumulates means, and ultimately himself becomes the owner of land, and in his turn the employer of others.

In order that agricultural science be valuable to the people, it must be taught where the people can have access to it. What mockery to provide the benefits of agricultural instruction, and yet have this instruction given only in institutions which no considerable portion of the people can by any possibility attend. It should be taught in the colleges as a matter of course. But let the colleges be in this, as in other subjects, places to which students may graduate from the schools of lower grade.

But, "*Cui Bono!*" says the practical man of business. "Suppose every reasonable objection be answered, and every farmer's child be thoroughly educated in agricultural science what good will it do?"

The question of utility properly stands at the threshhold of every enterprise. What use? In the proper answer to this question will depend the final success of this and every other movement. We live in a utilitarian age. We are a utilitarian people. And in the widest sense of this much abused word, I confess to the title of utilitarian. Utility is the motive power that gives force to an enterprise, and overcomes the inertia of popular indifference. By it, let us test the present movement, and let its fate be decided by the answer to the question—*For what good?*

The first and most manifest benefit arising from agricultural education will be the general increase of the products of the farm. As already stated, the farmer applies practically important principles of science. That, in order to apply these correctly, it is necessary to understand them, is a proposition which needs no argument. When the farmer plows, he changes the mechanical and chemical condition of the soil. When he plants and cultivates, he is making a beautiful experiment in organic chemistry. When he feeds his live stock, he is applying principles of physiology and hygiene. And, finally, every kind of farm work requires, in order that it be done at the right time, and in the proper manner, practical knowledge as well as practical skill. All these should be taught in the school books; the best methods explained, and the reasons for them. The effect will be to form early habits of thought, and to cause knowledge and judgment to take the place of routine. We should expect to find, as is the fact, that in those countries where agricultural science is better understood and better applied, a corresponding increase in the products of the earth. In England, Holland, and most of the German States, as well as in the New England States, they surpass us in the average products of the soil, although our lands are comparatively new, with a more favorable climate, and of greater natural fertility. Industry, guided by science, has converted the rocky fields of eastern Massachusetts into gardens, and every year witnesses harvests that are seldom equaled in the vastly more fertile fields of the West. In the different portions of the Union, the examples have been numerous of skillful and scientific farmers, who, purchasing waste and wornout fields, have, by underdraining, deep plowing, and a judicious application of fertilizers, made their barren soils the equal of the best. Great crops are not accidents. The laws of nature are uniform. In agriculture, as in other things, the same causes will always produce the same effects. Wherever exists the necessary conditions, great crops must be produced. To explain what are these conditions, how, at the least cost, to preserve them when present, or to produce them when absent, is the legitimate work of agricultural instruction. Let us suppose that all the valuable knowledge on this subject contained in agricultural books and agricultural papers, arranged into convenient and systematic form and published in a series of school books, numbering 1, 2, 3, etc., from easy primary works to those more thoroughly scientific, and that these were made a part of the school course for the farmers' boys, what great results might we not reasonably expect? Within the next generation the agriculture of Indiana would take a new form, and a hundred per cent. be added to the average products of the soil. The ditch, under-drain, and subsoil plows would carry from our clay lands the excess of moisture which is now compelled to evaporate into the atmosphere, generating ague, and all manner of pestilential fevers; the soil made rich by the judicious application of fertilizers; the houses, barns, orchards, and fences take neatness, order, and beauty, and our glorious Indiana become the Arcadia of the United States.

The simple operation of ditching, under-draining, and subsoiling, is an application of scientific principles very important in their effects on the fertility of the fields. Now is it not reasonable that the farmer who understands these principles will apply them, and thereby add to his own wealth as well as to that of the State?

But it is objected that it is enough to know the fact. I answer that we are a reasoning, skeptical, philosophical people, and very difficult to be convinced of facts without knowing the reason. But give us a theory, even a false one, if we are thoroughly convinced of it, and we will traverse the polar regions in search of Simm's Hole,—spend our money like dirt on a machine that is to be a perpetual motion,—or quietly wait the New Advent according to the predictions of Miller. Give us a reason, whether in religion, politics, or science, and we will follow it to its legitimate results.

The fact that the under-drain and the subsoil plow will greatly increase the yield has been proclaimed from the house-tops; and yet, with all our greed for gain, not one acre in a thousand has a tile under it, and scarcely a larger proportion of farmers have a subsoil plow. But teach the reason—teach it to the boys and young men before their routine has the fixedness of habit, and you shall soon see the result in the improvement of both climate and soil, and the increased yield per acre.

In the single fact of under-draining, alone, the State will be compensated more than a hundred fold for all the cost of teaching agriculture in the public schools.

Educational institutions are for the young. The youth should have opportunities to prepare for the life-battles in which they are soon to engage. Let the farmers' sons be thoroughly educated in the principles of scientific agriculture. Let theory and practice go hand in hand. While the muscles are being educated in the habit and skill of farm work, let the mind be instructed in such knowledge as will make their skill valuable. The year that witnesses the adoption of this measure will mark the era of improvement, and the person of middle age will live to see advantages accruing beyond all calculation.

Perhaps in nothing else is the importance of science more apparent, or its effects more manifest, than in the use of fertilizers. The farmer who knows not what the soil contains, nor what the plant feeds on, is not so likely to supply to a poor soil precisely the plant-food it needs, as one better informed as to the constituents of both plant and soil, and teaches the best and most economical means of supplying deficiencies.

One of the greatest drawbacks to agricultural improvement is the annual withdrawal of educated young men from the farm. Regarding farming as merely routine, the ambitious young man tires of the exclusively muscle work, and seeks a more intellectual pursuit. But scientific agriculture is an intellectual pursuit. These educated young men, finding in it opportunities for investigation and research, and that intelligent labor will produce double the yield of mere routine, will not be so readily tempted from the grandest of all human pursuits.

I do not mean that the student should give his attention to this subject alone, or to the exclusion of other needed information. I would not shut him out from other sources of knowledge, or whatever there may be of refining and humanizing culture. Every child that comes into the world has, by virtue of its humanity, an inalienable right to the growth of its powers, and should have, not only during minority, but through life, the best opportunities for mental and moral culture.

With the improvement of agriculture will come a corresponding improvement in the other industries, and of society itself. Endless, indeed, are the collateral advantages which would result, among which the suppression of demagogism and corrupt politicians will not be the least. The general increase of intelligence will make the people so jaunty a nag as to render the riding of them a dangerous experiment.

Patriotism is an amiable weakness, and I shall be pardoned for the desire of seeing Indiana take the lead of the States as the Union does among the nations of the earth—always providing that the place may be gained, not by dragging others back, but by heroically winning in the race.

The great resulting moral advantages must not be forgotten. It has been beautifully said that the laws of nature are the "elder word of God." The student of agriculture is the student of nature, and whether studying or applying this "elder word," he will feel that he is ever in the presence of the invisible but omnipotent God, to whom study and labor are at once a homage and a prayer.

After the delivery of the foregoing able address, the Board went into Committee of the Whole on the report of Jos. Poole, Esq., on the "Texas Cattle Plague."

Which elicited much discussion, participated in by Dr. A. C. Stevenson, Sample, Prof. Taylor, Poole, and others.

On motion of Mr. Williams, the Committee rose and were discharged from the further consideration of the subject.

Mr. Mutz offered the following:

Resolved, That the Seventeenth Annual Indiana State Fair be held, commencing September 27th, 1869, and that the Secretary be directed to so inform the adjoining States by telegraph.

Mr. Williams presented the following resolution, which was adopted:

Resolved, That the suggestions of Dr. Stephenson, on the Premium List, be referred to the Committee on the same.

On motion, the Board adjourned till 7 o'clock P. M.

EVENING SESSION, 7 o'clock P. M.

The Board met. President A. D. Hamrick in the chair.

Hon. J. D. Williams, from the Committee on Premium List, submitted the following report:

To the State Board of Agriculture:

Your Committee on Premium list, to whom was referred a resolution on the subject of a fast ring for horses, have had the same under consideration and directed me to report the following: "Strike out all that portion in the list that gives a premium on any horse for speed alone."

The report was received and laid over till half past 9 o'clock to-morrow morning, and made the special order.

Mr. Heron from the same Committee, made the following report:

To the State Board of Agriculture:

Your Committee on Premium List, to whom was referred a resolution of Dr. A. C. Stephenson, of Putnam, on fat cattle, sheep and hogs, have had the same under consideration and have directed me to report the following:

To offer a premium
For 5 best steers 4 years old and over.
For 5 best steers 3 years old and over, on gross weight.
For 5 best hogs.
For 5 best sheep.

Which was made a part of the special order for half past 9 o'clock, A. M., to-morrow.

Whereupon the Board adjourned.

MORNING SESSION, January 6, 1869.

The Board met. Minutes read and approved as amended. President Hamrick in the chair.

The question being raised as to whether nominations to fill vacancies on the Board were still in order, the same having been the special order of yesterday. the Chair held that further nominations to-day were not in order.

Dr. Helm appealed to the house from the decision of the Chair, and the appeal was sustained.

The hour having arrived for the consideration of the Committee's report on Premium List, in reference to awarding prizes to horses on account of speed, Mr. Cubberly, of Grant county, offered the following, as an amendment to the report of the Committee:

Resolved, That the premiums awarded to horses for speed alone is one of the most attractive features of State Fairs, and should not be abolished.

Messrs. Stevenson of Putnam, Williams of Knox, Hadley of Hendricks and Prof. Taylor, of *The North-Western Farmer*, spoke adverse to the resolution, and in favor of the report of the committee.

Messrs. N. O. Rose, of Miama. Mr. Mutz, of Shelby, Mr. Cox, of Posey, Jos. Poole, Esq., of Fountain and Mark C. Smith, of Delaware, spoke in favor of Mr. Cubberly's amendment.

During the pendency of the discussion the following communication from the Hendricks County Agricultural Society was read:

At a meeting of the Hendricks County Agricultural Society, held at the Court-house in Danville, on the 5th day of December, 1868, the following resolution was adopted, with one dissenting voice:

Resolved, That this Society does explicitly declare as the sense of its members, that offering premiums for superior speed exclusively, is not necessary for the maintenance of agricultural fairs, either County, District or State, but is prejudicial to their best interests. And also, the erection of booths or buildings for shows or panoramas within the fair grounds, or within legal distance, is prejudicial to the best interests of agricultural societies; and we ask the State Board of Agriculture to make regulations in accordance with the sentiment herein expressed.

Ordered, That a copy of the foregoing be forwarded to the Secretary of the State Board.

[Signed,] JOHN O. HADLEY, *Sec'y.*

The question being called, Mr. Williams moved to lay the amendment on the table.

Whereupon Mr. Cubberly withdrew his amendment, and Mr. Dowling of Vigo offered the following, as a substitute for the report of the Committee.

Resolved, That while this State Board proper evidently disapprove of all practices which make the trotting and pacing ring at our State Fairs the occasion of betting and gambling, we are of the opinion that it would not be wise to abolish these rings altogether. And we further express the opinion that the State Board should establish such rules for the government of trotting and pacing matches, as will exclude from the management of such rings all persons not known to the Board as reliable citizens of Indiana or sister States.

Mr. Hadley, of Hendricks, moved to lay the resolution on the table, on which the ayes and noes were called, resulting in ayes 11, noes 34. So the amendment was not laid upon the table.

Mr. Williams, of Knox, moved to recommit the whole matter to the Committee on Premium List.

Which motion was tabled, and Mr. Dowling's substitute for the report of the Committee was adopted.

The Board then proceeded to the election of eight members, to fill the places of those whose terms expire at the adjournment of this Board, with the following result:

From the 5th District—Benjamin North, Ohio county.

From the 6th District—Thos. Mitchel, Rush county.

From the 8th District—Judge W. C. Danaldson, Parke county.

From the 9th District—Hon. A. D. Harmrick, Putnam county.

From the 10th District—Alex. Heron, Fayette county.

From the 11th District—Wm. Crim, Madison county.

From the 12th District—Jos. Poole, Esq., Fountain co.

From the 13th District—Hezekiah Caldwell, Wabash county.

Each to serve two years, and until their successors shall be elected.

The special order with reference to fat cattle, sheep and hogs, was taken up and adopted without debate.

Mr. J. S. Dunlap, of the State Horticultural Society, presented seventy-five copies of the transactions of that valuable Society, which were reciprocated by a similar number of Reports of the Board for 1868.

The Board took a recess until two o'clock P. M.

AFTERNOON SESSION, 2 o'clock P. M.

Mr. Sutherland offered the following:

Resolved, That a committee of three be appointed to confer with the State Horticultural Society to agree upon some plan by which the two societies may meet together.

Which was adopted, and the Chair appointed as such committee Messrs. Sutherland, Shoemaker, and Prof. Cox.

Mr. Schooley, of Howard county, offered the following:

Resolved, That the State Board proper be requested to make an allowance to each delegate, in attendance, sufficient to defray his actual necessary expenses in attending this meeting of the State Board.

The resolution was ruled out of order, being in violation of the Constitution of the Board, to-wit: Art. 11.

Dr. Helm offered the following:

Resolved, That at the annual fair for 1870 the Board will offer a first premium, not to exceed $200, for the best ten acres of wheat grown in this State previous to the fair named in this resolution, and a second premium, not exceeding $150, for the second best ten acres, and a third premium, not exceeding $100, for the third best ten acres of wheat, as above. Rules to govern these awards shall be made and published in the Premium List for 1869.

Mr. Poole moved to amend by striking out "ten," and insert "five" acres.

Which amendment prevailed, and Dr. Helm's resolution adopted as amended.

Mr. Williams, from the committee to whom was referred the matter of ten per cent. entry fee at the State Fairs on articles to be exhibited, made the following report:

To the State Board of Agriculture:

Your committee to whom was referred the recommendation of the Secretary in his report to abolish the ten per cent. entry fee, have had the same under consideration, and have directed me to report in favor of the recommendation of the Secretary, and that said entry fee be abolished, and that all articles shall be hereafter exhibited free of charge.*

Mr. Cox moved to amend the report of the committee by excepting "horses for speed alone."

Which amendment was lost, and the report of the committee concurred in.

M. C. Smith offered the following:

Resolved, That no article or animal competing for premiums be allowed to an entry in more than one class, except for "Sweepstakes."

Which was adopted.

Mr. Cox, from the special committee to whom was referred that part of the Secretary's report in reference to the reports of 1868, reported as follows:

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* NOTE.—This practice was first adopted by the Board in 1862, when they had no funds and "Camp Morton" being occupied by the Government, were compelled to fit up new grounds every year, so the charge was necessary in order to be able to pay the premiums awarded. *Now*, with sufficient funds, the charge should not be made, there being no emergency of a pecuniary character. SECRETARY.

To the State Board of Agriculture:

Mr. President: The special committee to whom was referred that part of the Secretary's report that refers to the tenth volume of the State Agricultural Report for 1868, after having as carefully examined the same as the time allowed us would permit, would most respectfully report that the volume is of convenient size, and prepared in a neat and workmanlike manner. The mechanical execution of the work is not excelled by any State Agricultural Report in the Union. The embelishment of the volume by cuts of live stock and machinery make it still more valuable and interesting.

Your committee are sorry to learn of the limited number published, being only three thousand, whereas there should have been not less than ten thousand printed and distributed in the State. The promptness of laying the report before the public at so early a date is highly commendatory of the Secretary, it being fully ten months in advance of our neighboring State reports.

It is hoped that the Legislature about to convene will render us the necessary aid to continue the publication of these valuable sources of knowledge.

This volume contains an unusual amount of valuable and interesting matter—essays on different agricultural subjects, and especially the report and observations on that fatal disease known as the "Texas Cattle Fever."

Every county and district Agricultural and Horticultural Society in the State should have at least one hundred copies.

E. T. Cox,
N. O. Ross.
Committee.

The report of the committee was adopted.

The same committee made the following report:

To the State Board of Agriculture:

Your committee to whom was referred that part of the Secretary's report that refers to the Library, would report that we are pleased with the energy displayed by the Secretary in building up an Agricultural Library in our rooms in the Capital.

On examining the last Ohio Report, we find that the Ohio Agricultural Library contains thirteen hundred and fifty-seven volumes.

We recommend that an appropriation of two hundred dollars be made out of the surplus funds of the year 1868, and placed in the hands of the Secretary for the purpose of purchasing standard agricultural works for the Library.

It is deemed essential that the standard works on agriculture should be consulted in order to make our coming reports of value to the agriculturists of the State, and your committee further recommend that the periodicals now on file be bound and preserved.

E. T. Cox,
N. O. Ross,
Committee.

The report of the committee was adopted.

Mr. Cox read a draft of a bill to provide for a State geological survey and a museum of Indiana ores, minerals, etc., in connection with the present duties of the Board of Agriculture, for the diffusion of agricultural, scientific, and kindred knowledge, and to promote the industrial arts within the borders of the State.*

Mr. Donaldson offered the following:

Resolved, That the thanks of this association are due, and are hereby accorded, to Messrs. Douglass & Conner, of the Indianapolis *Journal*, for the prompt and efficient manner in which they have printed and bound the Report of this Society for the year 1868, and that said Report in its finish, quality of material used, and general workmanship, is entirely satisfactory, and highly creditable to the said *Journal* Company.

Which was adopted.

Mr. Pierson offered the following:

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* NOTE.—No action appears upon the record as having been taken by the Board, but a bill was presented by your present Secretary, and became a law.

Resolved, That this Board endorses the views expressed in Major Kinley's address, and recommend the introduction of agriculture as a study in the common schools.

Which was adopted.

Messrs. Heron and Holmes made verbal reports of what they saw and heard as delegates from this State Board to the State Fairs of Ohio and Kentucky.

Mr. Luckett, of Harrison county, offered the following:

Resolved, That it be recommended in the published proceedings of this meeting to advise the secretaries and managers of the several agricultural societies of the State to adopt an interchange of premium lists and rules, in order to thus avail themselves of the information thus presented to the public.

Which was adopted.

Mr. Hobbs, of Wayne county, offered the following:

Resolved, That the citizens of Indiana be invited to forward to the Secretary of this Board specimens of minerals, quadrupeds, birds, insects, fossils, etc., with full and accurate descriptions of the same; also, cereals, grasses, vegetables, and botanical specimens, suitably preserved, labeled, and described. Also,

Resolved, That the General Assembly be requested to enact suitable laws to prevent the destruction of birds, *especially such as devour insects*, or are interesting as songsters.

Which were adopted.

Mr. Caldwell, of Wabash, from the Committee on Finance made the following report:

To the State Board of Agriculture:

Your Committee on Finance to whom was referred the reports of the Secretary, Treasurer and General Superintendent, ask to make the following report:

We have examined the Secretary's report very minutely with his books in a neat and business like manner, accompanied by the proper vouchers.

The Treasurer's report we find to be correct, all orders and book entries corresponding to a nicety.

The Superintedent's report we also find correct, and accompanied with the proper vouchers.

Your Committee unanimously agree in recommending the following:

Resolved, That the Secretary, Treasurer, and General Superintendent, are entitled to a vote of thanks for the very able manner in which they have severally discharged their very important duties, which they have done in every way satisfactory.

Mr. Kinley moved that a committee of three be appointed to confer with a similar committee of the State Horticultural Society, in relation to the prohibition by law of the killing of birds beneficial to the farmer.

Adopted.

Messrs. Williams, of Knox, Shoemaker, of Perry, and Dr. John C. Helm, of Delaware were appointed such committee.

On motion of Lot S. Bayless, of Allen county, the Indiana State Board of Agriculture adjourned.

THURSDAY MORNING, January 7, 1869.

The State Board of Agriculture elect met, and were called to order by A. D. Hamrick, wherupon the Board proceeded to the election of officers for the ensuing year, with the following result:

President—Hon. A. D. Hamrick, of Putnam county.

Vice President—John Sutherland, of Laporte county.

Secretary—A. J. Holmes, of Fulton county.

Treasurer—Carlos Dickson, of Marion county.

General Superintendent—John B. Sullivan, of Marion county.

The following members were elected as an Executive Committee:

The President, Chairman, *ex officio.*
Dr. George W. McConnell, of Steuben county.
John Sutherland, of Laporte county.
A. J. Holmes, of Fulton county.
Joseph Poole, of Fountain county.

The following communications were received and read:

Indianapolis, January 5, 1869.

To the Honorable, The State Board of Agriculture:

Gentlemen:—The undersigned, being desirious that your beautiful driving park, (Camp Morton,) should be kept in suitable condition to allow us, as well as the citizens of Indiadapolis in common, a place for recreation and amusement, and believing that the only true way to accomplish that end is to place the grounds in charge of some competent and reliable person, we hereby recommend to you Mr. J. H. Caffee, of this city, as a gentleman well worthy of your confidence, should you see fit to entertain the proposition he herewith places before you.

(Signed.)

J. H. Baldwin,
C. A. Wright,
N. D. Kenneaster,
J. J. Cooper,
R. R. Parker,
Jno. C. S. Harrison,
J. C. McIver,
E. Locke,
T. B. McCarty,
W. P. Bingham,
E. C. Brundage,
J. D. Vinnedge,
John E. Foudray,
John M. Wood,
William Hinesly,
John Fishback,
C. C. Root,
L. W. Moses.
D. N. Davidson.

INDIANAPOLIS, INDIANA,
January 5, 1869.

To the State Board of Agriculture:

GENTLEMEN: I propose to take charge of your State Fair Grounds for the ensuing year, live on the premises, use the property for the purpose of driving, improving, and exhibiting the speed of driving horses; also for the exhibition of velocipedes. I propose to bind myself to look after the interests of the property, and to spend at least one hundred dollars in improvements on the grounds, and, in addition, propose to pay two hundred dollars for the use of said property for one year, excepting the week of your regular fair.*

Respectfully yours,
J. H. CAFFEE.

The matter of the undecided premium on best 3 year old bull exhibited by Isaac B. Loder, of Rush county, and J. A. Cummins, of Wayne county, at the last State Fair, was taken from the table, and Messrs. Cummins, of Wayne, and Thrasher, of Fayette, were heard in reference to the matter.

Mr. McConnell moved that the premium of $50 be paid to Mr. Cummins; which motion was, after some discussion, withdrawn, when Mr. Poole offered the following resolution, which was adopted.

Resolved, That Isaac B. Loder be notified that a protest is pending before the Board, presented by J. A. Cummins, of Wayne county, against the award of a premium at the last State Fair in a class of bulls 3 years old and over, and that said protest will be heard at the next meeting of the Board.

On motion, the Board adjourned till 2 o'clock P. M.

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* NOTE.—The record shows no action taken.—SECRETARY.

AFTERNOON SESSION, 2 o'clock P. M.

Board met pursuant to adjournment. All the members present except Messrs. Williams and Shoemaker.

Mr. Danaldson of Parke, presented the following resolution, which was unanimously adopted:

Resolved, That the Secretary be requested to confer with the different Railroad officers, and procure passes for the members over the roads which they necessarily travel in reaching this city.

Ordered, That Jos. Poole, Esq., be allowed the sum of twenty-five dollars for expenses in attending the Cattle Convention at Springfield, Ill., December 1, 1868.

Mr. Heron moved that John B. Sullivan be allowed one hundred and fifty dollars for extra services as General Superintendent for the year 1868.

After much discussion Mr. Mutz, of Johnson county, moved to amend by striking one hundred and fifty and inserting fifty.

Mr. Holmes moved to amend by striking out fifty dollars and inserting one hundred dollars.

The amendment to the amendment was lost, as also the amendment of Mr. Mutz, and the whole matter laid upon the table.

Mr. Dickson, Treasurer elect, presented his bond in the penal sum of twenty thousand dollars, with James M. Hume, Wm. L. Adams and Edgar J. Foster, as sureties, which was approved and accepted.

On motion of Judge Danaldson, the horticultural department of the premium list was referred to the able management of the State Horticultural Society as heretofore.

Ordered, That leave of absence be granted to Messrs. Mitchel, Crim, McCrea and North.

The Committee on Finance reported in favor of allowing the following bills, directing the Secretary to issue the necessary orders, and the Treasurer to pay the same:

Indianapolis Herald Company	$49 00
A. J. Holmes	7 40
Saturday Evening Mirror	4 80
R. L. & A. W. McOuat	60 10
McCreary & Fay	20 00
J. George Stilz	3 50
H. F. West & Co	7 20
J. Springsteen	18 30
Reynolds & Holliday	6 50
Hendricks, Hord & Hendricks	10 00
C. F. Schmidt	12 35
Pettis, Dickson & Co	15 61
John Hauck & Co	5 00
A. J. Holmes	14 40
Total	$234 16

Which was adopted.

The bill of Messrs. Marsee & Son, for saw-logs, amounting to $25 00, was referred back to the Committee with instructions to inquire into the matter and report at the next meeting.

The bill of the Eagle Machine Works, for sundry fixtures about Power Hall, was presented and likewise referred; as also a bill of J. S. Tarkington, for attorney fees during and since the year 1862.

Mr. Vajen also presented a bill for hardware for fair ground in 1860, which was likewise referred.

On motion of Mr. Cox, Hon. A. D. Hamrick, A. J. Holmes and Joseph Poole, Esq., were appointed to confer with, and urge the Legislature to adopt the measures presented for their consideration at the late meeting of the State Board proper.

Board adjourned till to-morrow morning at 8½ o'clock

MORNING SESSION, January 8, 1869.

Board met pursuant to adjournment.

The following members elect answered to a call of their names:

Messrs. Hamrick, Cox, Williams, Shoemaker, Mutz, Danaldson, Heron, Poole, Holmes, Sutherland and McConnell.

The minutes of yesterday were read and approved.

Dr. Furnas, from the joint committee of the Board and State Horticultural Society, made some remarks in reference to a joint meeting of the two Societies.

On motion, a special committee consisting of Jos. Poole, Esq., of Fountain, John Sutherland, of Laporte, and Dr. McConnell, of Steuben, were appointed a special committee to wait upon both Houses of the Legislature, and request their co-operation in the further development of all the industrial arts appertaining to Indiana.

Mr. Heron presented the following, which was adopted:

WHEREAS, The chief aim and object of the Legislature in creating the Board of Agriculture was to guard the agricultural and industrial interests of the State; and such interest is promoted by other means than State Fairs alone;

AND WHEREAS, The National Congress has tendered a liberal assistance toward promoting agricultural education, which has so long been neglected by our State Legislature; therefore, be it

Resolved, That a special committee be appointed to confer with members of the Leislature, and request them to leave the question of locating the proposed Agricultural College, and control of the funds arising from the land grant made by Congress in aid of agricultural education, in the hands of this Board, believing the same to be proper and appropriate.

Which was adopted, and referred to the committee last above named.

The Committee on Fair Grounds made the following report:

To the State Board of Agriculture:

Your Committee on Fair Grounds would respectfully submit the following report, to-wit: We, this day, visited the grounds, and find them in ordinary good condition, but would recommend the following improvements:

1. The clearing off of the grounds of all trash, and the leveling up of the grounds in many places where we find them uneven.

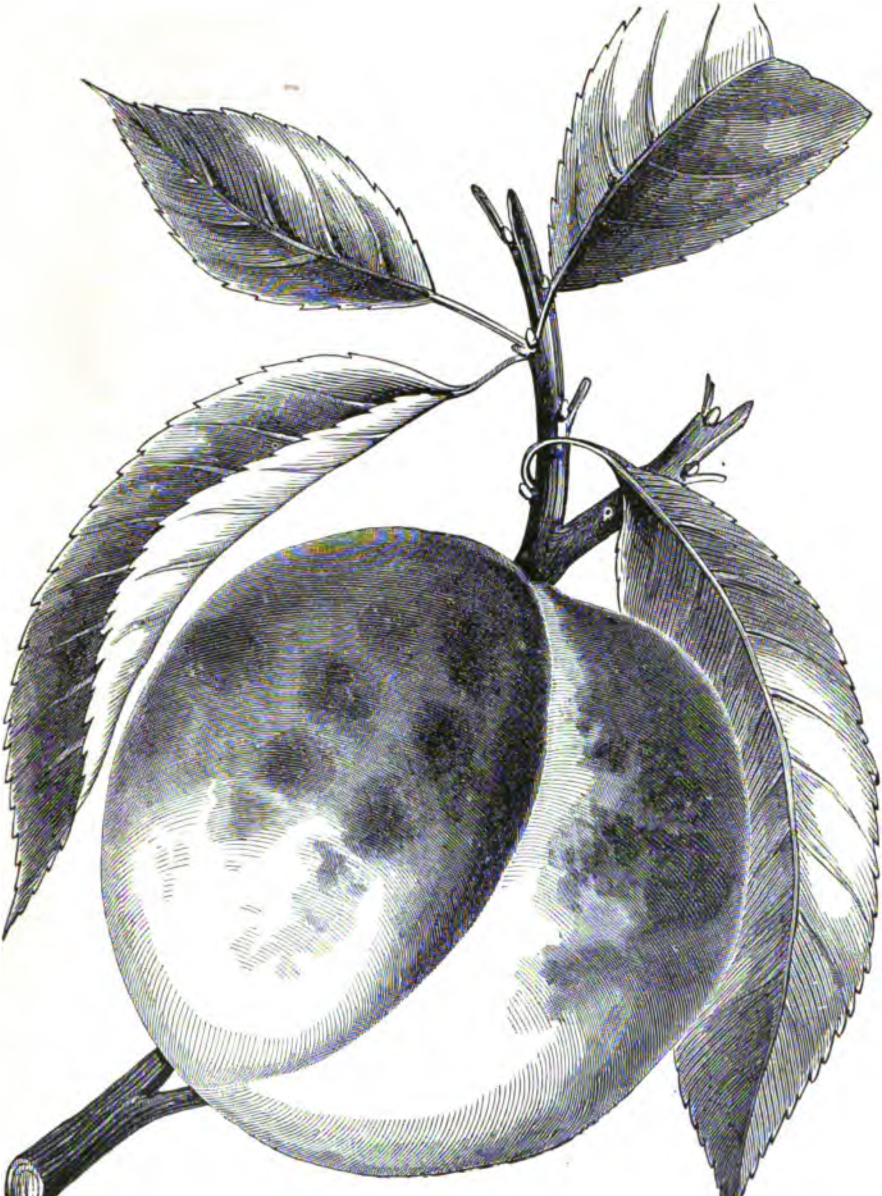
2. The planting of one hundred shade trees, all outside the ring, unless it be to replace some that have died during the past summer.

3. The removal of Floral Hall, that now stands inside the track, and the building of a new one, of the most improved style—large enough and so arranged as to hold all the floral display, the horticultural department and vegetables in separate wings or departments.

4. The erection of at least four good, tasty booths, commencing on a line even with the west end of Fine Art Hall and running east between said hall and the Ladies' Cottage, at a suitable distance apart the cost of which would not exceed $250.00 each, and would rent for at least $100.00 each, which would afford a good revenue and increase the funds to a great extent.

5. The addition of twelve feet to the rear end of the water closet attached to the Ladies' Cottage, so as to admit of making an area of twelve feet between the water-closet and Cottage building. This would prevent the odor so offensive, referred to in the Secretary's report, each side of said area to be lattice-work.

6. We recommend that the old Dining Hall used in 1868 for carriages and wagons, be converted into a Dining Hall for 1869, and that the basement of the Ampitheatre be occupied as follows: The east one hundred and fifty feet, (if needed,) for a Carriage and Wagon Hall; the next sixty feet divided into spaces of twelve feet each for the several sewing machines; and all that part west of the west stairway to be used exclusively for confectionary



HALE'S EARLY PEACH.

stands. It is believed by the committee that these sixty-five feet would bring about $300.00, and experience has taught us that the sale of booths under the east end of the Ampitheatre is not profitable. This would enable the Society to sell the use of the hall occupied by sewing machines last year for a booth and dining hall, which would bring the Society at least $100.00 or $150.00. That part of the Ampitheater used for sewing machines should be floored. We also recommend that a tin spout be put up along the north side of the Ampitheatre so as to carry off the water from the time track.

7. The flooring of all the hog stalls, and the erection of at least twenty more new stalls. It is considered by the committee that the old Floral Hall will furnish enough lumber to do all the repairing, laying of floors, and roofing of pens, so that no new lumber will be required except for new buildings.

8. The erection of a new bridge across the ditch in the grounds, at least thirty feet wide, which would admit of carriages passing each way, and a foot-way on each side, at the present location of the old bridge.

9. We unanimously agree in the recommendation that our grounds should not appear in mourning, but should have the appearance of life and progression; therefore we earnestly urge that this Board do order the old grave-yard-appearing gates at the front or south entrance to be torn down, and a new set of gates erected that will reflect credit on the Society we represent.

H. CALDWELL,
A. J. HOLMES,
JACOB MUTZ,
Committee.

JANUARY 11, 1869.

Which, on motion of Mr. Poole, was laid over, to be taken up at the next meeting of the Board.

On motion of Mr. Danaldson, the bill of John B. Sullivan, General Superintendent, was taken from the table, and Mr. Heron moved to allow the claim—$150.

Mr. Holmes moved to strike out "$150.00," and insert "$100.00."

Which was agreed to.

Dr. Helm, from the committee of conference with the State Horticultural Society in reference to the killing of birds that are beneficial to the farmer and fruit grower, made the following report:

To the State Board of Agriculture:

The undersigned committee appointed to confer with a like committee of the Indiana State Horticultural Society on the subject of killing birds, would report that they have endeavored to effect a meeting with the committee of the Indiana Horticultural Society, but were unable to succeed. On their own part they would report, that in their opinion there are none of our birds that should be indiscriminately killed, except, perhaps, the birds of prey, viz: the several varieties of hawks and owls; and as to the owls, they think the propriety of their indiscriminate slaughter is extremely doubtful, as some of them subsist almost entirely on field mice and other small animals. Some of them will occasionally commit depredations on the poultry yard, but even they destroy rats enough in the fields and about the barns to amply compensate for an occasional fowl.

Respectfully submitted.

J. C. Helm, *Chairman.*

Which was adopted.

Here the Board took a recess till 2 o'clock P. M.

Afternoon Session, 2 o'clock P. M.

The Board met pursuant to former order.

Present—Messrs. President Hamrick, Cox, Williams, Heron, Shoemaker, Holmes, Poole, McConnell and Sutherland.

On motion, the Board took a recess till 4 o'clock P. M., to hear the message of Governor Baker before the General Assembly.

EVENING SESSION, 4 o'clock P. M.

The Board met and received a report from the Committee on Finance, allowing sundry small bills, and directing the Secretary to insure the buildings on the fair ground to an amount not exceeding $7,000.

All of which was adopted,

When, on motion of Prof. Cox, the Board adjourned till February 16, 1869.

FEBRUARY MEETING, 1869.

The Board of Agriculture elect met at their room in the State House, Tuesday, February 16, at 10 o'clock A. M.

President A. D. Hamrick in the chair.

The roll of members being called, Messrs. Cox, Shoemaker, McCrea, Mitchell, Danaldson, Hamrick, Heron, Crim, Poole, Caldwell, Holmes and Sutherland answered to their names.

On motion of Mr. Holmes, the Board adjourned to attend the funeral of General George D. Wagner, a former member of the Board, and its President in 1860.

The Board in a body repaired to the Bates House, attended the funeral, and escorted the remains of the deceased to the railroad depot preparatory to its removal to La Fayette, the home of the deceased.

AFTERNOON SESSION, 2 o'clock P. M.

Board met. All the members present.

Mr. Holmes moved that the sum of eight hundred dollars be appropriated to the State Horticultural Society, to be awarded as premiums for 1869 in class "Fruits and Flowers."

Some discussion was had touching the resolution, by Messrs. Poole, Hamrick, Holmes, Cox and Sutherland, of the Board, and Messrs. Dr. Furnas, Dr. Bland and Loder, of the Horticultural Society, after which the the motion was unanimously adopted.

The Board then proceeded to arrange the premium list, and adopted seven sections of the Agricultural Department.

When they adjourned till to-morrow morning at half past 8 o'clock.

WEDNESDAY MORNING, February 17, 1869.

Board met at half past 8 o'clock.

President Hamrick in the Chair.

All the members present.

The Board resumed the arranging of the Premium List, and at 12 M, took a recess until 2 o'clock.

AFTERNOON SESSION, 2 o'clock P. M.

The Board met.

The Committee on Finance reported adverse to allowing the claim of Marsee & Son, for $25, for logs furnished saw mills on fair grounds at last fair. Mr. Marsee was heard in support of his claim, when the matter was laid over until to-morrow morning, at 9 o'clock.

From the same Committee allowing J. H. Vajen bill, 1866, by order of J. A. Grosvenor, Superintendent, $57,80. Also, in favor of allowing sundry other bills amounting to the sum of $106,60.

Which were ordered paid.

The Board resumed the consideration of the Premium List, and at 5 P. M., adjourned until to-morrow morning at half past 8 o'clock.

THURSDAY MORNING, February 18, 1869.

Board met pursuant to adjournment.

President Hamrick in the Chair.

And a quorum of the members present.

Mr. Holmes made a report of the appropriation of $50, placed in his hands January 7, 1868, for agricultural literature, etc.

Which was received and concurred in.

Mr. Danaldson submitted the claims of the Bridgeton Union Agricultural Society, claiming the funds from Parke county, "The Parke County Rural Institute" having received the funds.

Which was referred to a special commitee consisting of, Messrs. Joseph Poole, John Sutherland and J. C. Shoemaker.

On the following day the above Committee submitted the following report upon the subject matter contained in Judge Danaldson's declarations.

To the State Board of Agriculture:

Your Committee to whom was referred the matter of inquiry presented in reference to the two Societies in Parke county, have considered the same, and beg leave to report that the Committee is of the opinion that "The Parke

County Rural Institute," and "The Bridgeton Union Agricultural Society," are each entitled to an equal share of the Agricultural reserved funds from said county.

Which report was received and adopted.

The Committee on Finance reported the following bills and recommended payment:

W. & J. Braden	$41 50
Eagle Machine Works	220 00
Union Express	10 20
C. Dickson, Medals	8 50
Total	$280 20

Which was concurred in.

On motion of Mr. Poole, the Secretary was directed to write two notices, and place the same in the hands of Mr. Mitchell, to be by him served on Isaac B. Loder, of Rush county, in reference to the premium on bull, awarded at the State Fair of 1868, and summon him to appear before the Board at the fair ground on Tuesday, September 28, at 2 o'clock P. M., to answer in the matter, and that J. A. Commins, of Centerville, Indiana, be awarded the premium and paid $50.

The report of the Committee on the Horse Department of the Premium List, was taken up and adopted. (See list as offered and awarded elsewhere.)

On motion of Mr. ———, one-half of the claim of Marsee & Son, as presented yesterday, was allowed and ordered paid.

Mr. Holmes was also allowed $41,75, for postage and revenue stamps.

Professor Cox, offered the following resolution:

Resolved, That the State Board of Agriculture respectfully recommend, and ask the State Legislature, now in session, to appoint a Committee of three or more, who shall visit New Harmony, and examine the

Geological collection of the late Dr. David Dale Owen, for the purpose of taking into consideration the expediency and propriety of purchasing the same.

Mr. Poole moved to amend by adding:

And should the Legislature appoint such Committee, then this Board hereby appoint Dr. E. T. Cox, who was Assistant Geologist to the late Dr. Owen, to accompany said Committee, for the purpose of examining and describing said collection to said proposed Legislative Committee.

The resolution as thus amended, was adopted by consent.

Whereupon the Board adjourned.

Afternoon Session, 2 o'clock p. m.

The Board met.

A quorum being present.

Mr. Sutherland moved the adoption of the rules and regulations governing the next State Fair, as amended. (See list.)

The Secretary was directed to prepare a programme to be observed at the State Fair, and print the same in the Premium List.

The following Members of the Board were appointed as Superintendents of Departments.

Horse Department—Thomas V. Mitchell.

Cattle Department—H. Caldwell.

Hog and Sheep Department—Jacob Mutz.

Mechanical Department—Messrs. Crim and North.

Carriage and Furniture Departments—Judge W. C. Danaldson.

Amphitheater Department—J. D. Williams.

Agricultural Department—John McCrea.

Fruit and Floral Departments—John C. Shoemaker.

Fine Art Department—Professor E. T. Cox.

The following members agreed to furnish one Gatekeeper each for the week of the State Fair:

Messrs. Poole, McCrea, Holmes, Mutz, Hamrick, Heron, Crim and Caldwell.

On motion of Mr. Holmes, the same fees for Gate-keepers, Superintendents, Committeemen, and Police, was agreed upon as paid last year.

Mr. Heron moved to open the Amphitheater free to all during the next State Fair.

Which was not adopted.

Ordered, That the Secretary procure badges for the Members of the Board, before the next State Fair.

Leave of absence was granted Mr. Crim.

The Board adjourned until to-morrow morning at eight o'clock.

FRIDAY MORNING, February 19, 1869.

The Board met pursuant to adjournment.

President Hamrick in the Chair.

The reading of yesterday's minutes were dispensed with.

Mr. Danaldson moved that the names of exhibitors be in future withheld from cards of entry.

Which was not adopted.

The report of the Committee on Fair Grounds, made at the last meeting, was taken up and read. (See report published on a preceding page.—SEC'Y.)

Mr. Caldwell offered the following resolution:

> *Resolved*, That as soon as the ground is in proper condition in the spring, the General Superintendent be directed to employ a sufficient force to clean off the Fair Grounds, and put them in good condition in the shortest possible time consistent with the best interests of the Board.

Which was adopted.

Mr. Caldwell offered the following resolution:

Resolved, That the President, Secretary and General Superintendent, be appointed a building committee, to superintend the erection of all new buildings and repairs on the grounds, and as soon as plans and specifications shall be adopted, to advertise for proposals to build the same—the contractor to furnish all material; and that said committee see that the buildings are put up in strict accordance with the adopted plan and specifications.

Which was adopted, and such committee appointed.

Mr. Sutherland offered the following preamble and resolution:

WHEREAS, The meetings of this Board have at all times been pleasant and agreeable, and the fond recollection of our past associations with officers and members linger in all our hearts,

AND WHEREAS, We can but cherish the memory of those who have passed away; Therefore, be it

Resolved, That each Member of the Board, from its organization to the present time, be requested to furnish a photograph of himself for preservation in the State Agricultural Rooms, and be it

Resolved further, That the Secretary be requested to correspond with the members and officers, and ex-members and ex-officers of the Board, and the surviving friends of such as are deceased, with a view to carrying out this object.

Which was unanimously adopted.

At ten o'clock A. M., Messrs. Mutz and Mitchell, were granted leave of absence.

On motion a Standing Committee of three, consisting of Messrs Poole, Heron and Caldwell, were appointed a committee to report upon machinery at the State Fair, upon which no premiums are offered.

All unfinished business was referred to the Executive Committee.

On motion of Mr. Poole the Board adjourned to meet on Monday, September 27th, at ten o'clock A. M., on the Fair Ground, and the Executive Committee to meet at the same place September 23, 1869.

(Signed.) A. J. HOLMES,
Secretary.

OFFICE INDIANA STATE BOARD OF AGRICULTURE,
INDIANAPOLIS, IND., May 17, 1869.

Hon. Fielding Beeler:

SIR:—In pursuance of the law approved and signed May 3, 1869, authorizing the President of the State Board of Agriculture to make appointments to fill vacancies caused by death, removal or resignation, you are hereby appointed Secretary of the Indiana State Board of Agriculture, to fill the vacancy caused by the death of the Hon. A. J. Holmes, of Rochester, said appointment to take effect and be in force from and after the date hereof, and continue until the next Annual Meeting of the Board, the Tuesday after the first Monday in January, 1870, and until your successor shall have been elected.

You will, therefore, take immediate possession of the office, books, and papers, of said Board, and enter this order in full upon the Journal.

(Signed.) A. D. HAMRICK,
President Indiana State Board of Agriculture.

SEPTEMBER SESSION, 1869.

OFFICE INDIANA STATE BOARD OF AGRICULTURE,
FAIR GROUNDS, INDIANAPOLIS. Sept. 27, 1869.

The State Board met at their room on the Fair Grounds at 11 o'clock A. M.

President A. D. Hamrick, in the Chair.

The following members were present:

Messrs. E. T. Cox, John C. Shoemaker, Thomas V. Mitchell, W. C. Danaldson, Joseph Poole, Esq., John Sutherland, William Crim, H. Caldwell and Dr. George W. McConnell.

The President called the attention of the Board to the 3d of the printed rules and regulations. After considerable-discussion, looking to its repeal, it was considered best to let it remain as printed.

Permission was granted to Dr. Bland to build an office on the Fair Grounds, and Mr. Sutherland was appointed to select a suitable place.

With regard to the ring of breeding "bulls to be shown with their calves," section 12, page 8, of the Premium List, it was agreed that "calves *meant offspring of any age.*"

Mr. Poole offered the following:

> *Resolved*, That no free passes be furnished to the employees of exhibitors, eating stands, shows, or other things of this nature, during the Fair.

Which was unanimously adopted.

The Board then adjourned.

EVENING SESSION, BATES HOUSE, Sept. 27, 1869.

The Board met at 8 o'clock P. M.

President Hamrick in the Chair.

There being a full attendance of the Board.

1st Dist.—E. T. Cox, New Harmony, Posey county.
2d Dist.—J. D. Williams, Wheatland, Knox county.
3d Dist.—John C. Shoemaker, Cannelton, Perry county.
4th Dist.—John McCrea, Bloomington, Monroe county.
5th Dist.—Benjamin North, Rising Sun, Ohio county.
6th Dist.—Thos. V. Mitchell, New Salem, Rush county.
7th Dist.—Jacob Mutz, Edinburg, Johnson county.
8th Dist.—W. C. Donaldson, Montezuma, Parke county.
9th Dist.—A. D. Hamrick, Putnam, Putnam county.
10th. Dist.—Alex. Heron, Connersville, Fayette county.
11th Dist.—William Crim, Anderson, Madison county.
12th Dist.—Joseph Poole, Esq., Attica, Fountain county.
13th Dist.—H. Caldwell, Wabash, Wabash county.
14th Dist.—Vacant by the death of A. J. Holmes.

15th Dist.—John Sutherland, Laporte, Laporte county.

16th Dist.—Dr. George W. McConnell, Angola, Steuben county.

Mr. Heron offered the following preamble and resolution:

WHEREAS, The death of our esteemed Member, Associate, and worthy Secretary, A. J. Holmes, has been reported to this Board, therefore,

Resolved, That the President appoint a special committee of condolence, consisting of five members, whose duty it shall be to draft suitable resolutions expressive of the estimation in which the deceased was held by this Body, and report the same to the Board for their action during the present session.

Which preamble and resolution was unanimously adopted; whereupon the Chair appointed as such committee Messrs. Heron, Cox, Sutherland, McConnell and Poole.

On motion of Mr. Poole, it was

Ordered, That ten tickets be presented to Mr. Dowling, to be by him distributed for the benefit of the Vigo Agricultural Society.

Mr. Poole moved that the Chair appoint two members of the Board a committee to act with J. R. Osgood, to examine processes for drying lumber.

Adopted.

It was ordered that the gates be closed on Tuesday A. M., exhibitors and their employes only to be passed in, and the gate-keepers to inform all persons that on Wednesday tickets will be required from all who pass the gates.

On motion of Mr. Cox. each member of the Board was allowed twenty-five tickets for the use of his committeemen, etc.

The Board then adjourned till 9 o'clock A. M., Tuesday.

FAIR GROUND, September 28, 9 o'clock A. M.

President Hamrick called the Board to order.

The committee of condolence in relation to the decease of A. J. Holmes, late member of the Board, and Secretary at the time of his decease, presented the following preamble and resolutions, which were unanimously adopted without debate:

A. J. HOLMES, DECEASED,

To the State Board of Agriculture:

Your committee appointed to draft resolutions of condolence expressive of the feelings of this Board in regard to the sudden decease of A. J. Holmes, Esq., would respectfully present the following:

WHEREAS, Through the dispensation of Divine Providence, our worthy member and Secretary, A. J. Holmes, of Rochester, Fulton county, departed this life, after three days of most excrutiating pain and suffering, on the 29th day of April last; therefore,

Resolved, That in our worthy associate, member and Secretary, the deceased, we recognize the loss of a true friend, courteous gentleman, and a prompt and efficient officer.

Resolved, That as a member of this Board, we deeply deplore his loss, as also the loss thus sustained by the interests of Agriculture and the Mechanical Arts, recognizing in this affliction the loss of one of its most zealous and energetic co-laborers.

Resolved, That we deeply sympathize with the family of the deceased in this their great affliction and bereavement, and extend to them our sincere condolence and heart-felt emotions of friendship, and stand ready at any time to render them any kindness or assistance in our power.

JOSEPH POOLE,
ALEXANDER HERON,
GEORGE W. MCCONNELL,
JOHN SUTHERLAND,
E. T. COX,
Committee.

On motion of Mr. Poole it was

Ordered, That the preceding action of the Board be spread upon the minutes, and printed in the city papers.

and the Secretary directed to prepare a certified copy, and that John Sutherland and Dr. Geo. W. McConnell be appointed a committee to deliver the same to the family of the deceased.

[Note by the Secretary.—I deem it not inappropriate here to print the following proceedings had at the "Twenty-Second Semi-Annual Communication of the R. W. Grand Encampment of I. O. O. F. of this State, held at Indianapolis, May, 1869.]

[*From the Address of W. C. Lupton, Grand Patriarch.*]

DEATH OF GRAND JUNIOR WARDEN A. J. HOLMES.

The stands of your officers being draped in mourning has prepared you for the announcement of the death of our Grand Junior Warden. Though this sad occurrence may have been made known to you all, through the press, yet who has not a tear to shed now that it is again called to mind. At your last Communication—but six months ago, he was with us in all the vigor of health, with as good prospects for long life as any of us enjoyed; to-day, at the call of the roll, he responded not—the position to which your partiality called him by a flattering vote, over many competitors, is vacant—he will mingle in our counsels no more. He "sleeps the sleep that knows no waking," until the resurrection morn. He may be said to have fallen a martyr to our cause. It was on the 26th of April last, the anniversary of the semi-centenial celebration of our Order, at Rochester, where he lived, and while acting as the Marshal for the occasion, his horse fell, by which fall he recieved injuries which caused his death on the third day thereafter. How fitful is life—how certain is death. That he was respected, esteemed, beloved, the honor you conferred upon him testifies. This event should not be without its lesson to us—to so live that when the summons comes we may be found faithfully discharging all the duties of life. It will be for you to pay a suitable tribute to his memory through an appropriate committee.

Respectfully submitted,

W. C. Lupton, *Grand Patriarch.*

Grand Rep. Joseph A Funk offered the following resolution:

Resolved, That so much of the Grand Patriarch's report as relates to the death of Grand Junior Warden A. J. Holmes, be referred to a special committee of three.

Grand Rep. Joseph A. Funk, from the special committee, made the following report:

To the R. W. Grand Encampment I. O. O. F. of Indiana:

While it is the duty of this Body to devote its deliberations to the good of the living, it is one of its time-honored customs to pause in the midst of its labor to do honor to the honorable dead. The Grand Patriarch has announced the death of Grand Junior Warden A. J. Holmes, and to us has been assigned the duty of reporting a suitable tribute of respect to his memory.

Patriarch A. J. Homes died on the 29th of April, 1869, at his home in Rochester, Fulton county. His death was caused by injuries received from the fall of his horse, while acting as Marshal at the celebration at Rochester of the semi centennial anniversary of our Order.

Bro. Holmes was made an Odd Fellow in Rochester Lodge, No. 47, July 12, 1856, and for nearly thirteen years was an earnest, zealous, devoted laborer in all the duties enjoined upon him, and faithfully exemplified, in all the relations of life, the distinctive and ennobling principles we inculcate. He was not an Odd Fellow in name only; the esteem in which he was held by his brethren—the respect they have manifested for him in death—prove that our lessons of Charity, Friendship, Love and Truth influenced his every act, and thus endeared him to all. He was admitted to membership in this Grand Body in May, 1860, as a representative of Mount Horeb Encampment, No. 24, and to membership in the Grand Lodge from Rochester Lodge, No. 47, in November, 1863. The ability and fidelity he manifested in his Subordinates, was apparent in the Grand Bodies; and, these, with his uniform kindness and courtesy, gained for him the confidence and esteem of all with whom he was associated. This was evident from the very flattering vote, over several prominent competitors, by which he was chosen Grand Junior Warden, at the late Annual Communication.

The noble qualities of heart and mind, which so endeared him to us, gave him like prominence in the community in which he lived. For eight years he filled the important and responsible office of Auditor of Fulton county; and, after several years service as a Director in the State Board of Agriculture, was chosen Secretary thereof. The complicated and arduous duties of this position he discharged to the satisfaction of all. He was, indeed, exemplary in all the relations of life. He had blessed the domestic circle by the most cherished of domestic virtues; his various positions had been honored by his sterling integrity and valuable practicable attainments; and his church, of which he had been a member for twelve years, while it had been blessed by the purity of his heart and liberality of his hands, was strengthened by the beauty of his example, and the excellence of his counsel. More, we need not, less, we could not, say of one so generally and greatly lamented.

We offer the following resolutions:

Resolved, That this Grand Body has heard with grief the annunciation of the death of Andrew J. Holmes, Grand Junior Warden of this Grand Encampment.

Resolved, That we will ever cherish a grateful recollection of his many excellencies; and imitate and emulate the virtues which so endeared him to us, that each and all may merit and secure a like memorial, when we too, shall have gone hence.

Resolved, That to the wife, whose ministrations had been the consolations of his life,—now bereft of one on whom she so confidingly relied—to the children, deprived of a father's care and counsels—we offer our sincere condolence, and commend them to Him whose grace alone can make amends for their great loss.

Resolved, That the Grand Scribe furnish a copy of the above to the family of the deceased.

Which was unanimously adopted by a rising vote."

ORATION,

DELIVERED AT THE BAPTIST CHURCH IN ROCHESTER, FULTON COUNTY, INDIANA, APRIL 29, 1869, AT THE FUNERAL OF A. J. HOLMES, BY E. H. BARRY, G. S. I. O. O. F., OF INDIANAPOLIS.

It was Thursday last, in the afternoon, while sitting in my office, absorbed in business, laying plans for the future, heedless and thoughtless of death and the mutability of life, when a telegram from the Secretary of Rochester Lodge, No. 47, was put into my hand, informing me that our esteemed Grand Junior Warden of the Grand Encampment, A. J. Holmes, was dead, and was to be buried on Saturday at 11 o'clock. I could not realize the truth of the message. It was only a few days previous I had parted with him with as good prospects of long life as any of us enjoy. He was leaving the Capitol for his home, to participate with you, my brethren, in the celebration at the Fiftieth Anniversary of our Order. The announcement of *his* death overwhelmed me.

How soon, quick as the electric flash, were the thoughts turned from busy cares to contemplate the uncertainty of life, the certainty of death. Surely this sudden, sad event confirms the truth of the saying, "In the midst of life we are in death."

"Death rides on every passing breeze,
And lurks in every flower."

Who can tell what a day or an hour may bring forth?

"Friend after friend departs—
Who hath not lost a friend?
There is no union here of hearts,
That hath not here an end."

We were friends in life, and now that death has claimed him for his own, I have come to testify with you, my brethren, the sincerity of our friendship, by bedewing his mortal remains with unfeigned tears from our stricken hearts, and pay this last sad tribute of respect to his memory.

Brother Holmes was my friend, evinced by many kindnesses during a long and intimate acquaintance, and our tried, trusting, confiding friendship was mutual and enduring. We were brothers—

"Not so in kin"—

not in the fashion that the world puts on—but brothers in the heart. Long fraternally related; laboring, in our associated capacity, to elevate the character of man, to imbue him with proper conception of his capabilities for good, to enlighten his mind, to enlarge the sphere of his affections, to assist each other in distress, help each other in want, counsel each other in difficulty—in a word, to lead man to the cultivation of the true fraternal relation designed by the Great Author of his being. His fidelity in this—the devotion of his time, talent and means to effect it, have endeared him to you and to me, and now that he is gone, the tear, unbidden, flows.

The love I bore him for his devotion to Odd-Fellowship, for his appreciation and practice of its principles, as well as for his many excellencies, in all the relations of life, makes it a painful task to speak over his lifeless remains. I feel like a child, devoid of the power to speak as I ought, and am more sensible than ever of my own weakness and imperfection. The stoic may consider it undignified to weep, but I cannot help mourning when one I have known so long, and loved so well, is called away. No one of this large assembly, outside of the family circle, feels more sincerely than myself the death of Brother Holmes.

It does not become me to speak in this community of his relations to it as a citizen. Of these I know but little, while they are known to you all. The large crowd of citizens, who are without our Order, in attendance here to-day, their saddened look, their tear-bedewed eyes, attest their appreciation of his many excellencies as a citizen. I know, however, it will be a safe appeal to Truth to ask her to testify that few have journeyed the sands of life as far as he who could turn upon the retrospect of all his varied intercourse with the world as he could turn, if living, with so little regret.

I shall only allude to his official relations with one of the organizations of the State—the State Board of Agriculture—one of the most important, responsible and perplexing positions, which required peculiar talent, unremitting toil, unwearying patience, kind forbearance, and unsullied integrity. These rare combinations of virtue were found preëminent in Brother Holmes.

He owed not his elevation to the responsible position of Secretary of that Board to any adventitious circumstances or influence of friends. Those at his own home, in his own county, who knew his worth, chose him to represent them on that Board, and his sterling qualities made him conspicuous as a Director. It was the essential inherent qualities of mind and heart, apparent after trial, that impelled his associates on the Board to make him Secretary. His praise for ability and efficiency is freely expressed by all who had official intercourse with him, and so commanded the unqualified approbation of the Board, that, though there were other aspirants for the place, he was unanimously reëlected at the last annual meeting. His loss will be felt by the State at large, and the hearts of his colleagues on that Board will be as sad as ours when they realize that he is dead. They will ever cherish a grateful remembrance of the noble qualities of head and heart which characterized his social and official relation with them so long.

I am here, more especially, to speak of him in the fraternal relations he sustained to us as an Odd-Fellow. He was, as you all know, essentially an Odd-Fellow; and in his life exhibited those attributes of that charity we teach—not such as is usually displayed by the world, in cold almsgiving, but warm and active benevolence, a universal good-will, a ready sympathy in the afflictions of mankind—that charity which springs from the heart, softens the affections, and incites to good actions. It was among us, my brethren, that his character was best understood and appreciated. His practical exemplification of his covenanted engagements to extend the sentiment of brotherhood, and by this means remove the obstacles that interpose between the hearts of men—his fidelity to that obligation to help and support his afflicted and persecuted brother, to warn him of approaching danger, to point out his advantages and interest, to protect his property, assist his family, defend his character, and save his life and limb, should opportunity offer, endeared him to you and to me.

The breaking of bread to the hungry, the cup of cold water to the thirsty, watching by the sick-bed, comforting the afflicted, cherishing the stranger, visiting the imprisoned, succoring the enfeebled — these tender duties, enjoined by our Order, but sadly neglected by a large portion of our race, were readily and cheerfully performed by him, so far as opportunity and means would admit. Those who had but a casual acquaintance with our departed brother may regard this statement as a highly colored sketch of fancy — as the license of the eulogist — but to you, my brethren, who were so long intimately acquainted with him in your fraternal relations, it is known to be a truthful epitome of his history as an Odd Fellow.

It was among us that the seeds of his labors were scattered and have ripened into healthful fruit; and these labors secured for him the highest position in your gift, and constrain us all to come and strew his honored grave with evergreens, the significant symbol of memory and eternity, and wear close folded about our hearts the inky cloud.

Brother Holmes was admitted into Rochester Lodge No. 47, July 12, 1856. The honors you conferred in life, the respect you evince in death, show that you have no cause to regret that you admitted him as a brother; nay, prove the more that he was ever animated by the pure principles of Odd Fellowship, and that his life and conduct have afforded no reproach to the new character you conferred upon him.

His uniform and habitual courtesy, proceeding as it did from native goodness of heart, won your confidence and esteem; and, step by step, through all the gradations of our Order, he attained the highest honors it was in your power to bestow. Your confidence in his abilities made him, in May, 1860, a representative from Mount Horeb Encampment, and, in November, 1863, he was chosen from Rochester Lodge No. 47, a representative to the Grand Lodge. In these bodies he distinguished himself among eminent compeers as a prudent counselor, a conciliatory legislator, competent for any duty, and assiduous in the discharge of any and every trust confided to his care. His deserved popularity soon placed him in responsible positions. He was several times appointed D. D. G. M. and D. D. G. P. After several years of efficient service in the Grand Encampment his recognized abilities and courteous deportment induced his brethren, by a very flattering vote, over several competitors, at the late communication, to confer upon him the distinguished position he held at the time of his death. There is no doubt, if death had not deprived us of him, the same preference of his brethren would have assigned him yet other honors, until he would have attained the highest in their gift.

He had nothing in his character of that presumptious self-confidence which frequently renders men notorious even before their labors are of any practical benefit. He had no ambition for mere worldly honors or fleeting fame. He had nourished and cultivated prudence, and in him it was a marked characteristic. This admirable quality, his unobtrusive manner, may have rendered a knowledge of him less general and familiar to the world without; but within our Order, where his merits were best understood and appreciated, he is ranked with the distinguished, the loved, and the honored. The chaplet which most graced his brow was of the flowers wreathed by the hand of Friendship, Love and Truth.

That he was a tender husband, a kind father, a beloved neighbor—that his house was the mansion of peace, and his household the subject of content, the wailings of those crushed and bleeding hearts painfully testify. Grief like heirs is too sacred for the measured language of sympathy or condolence. Let them be comforted by the assurance that there is One whose goodness bindeth up the broken heart. The Judge of the widow is He, and the Father of the fatherless in His holy habitation, and that there is a world where the good will meet again, and into which sorrow, and pain, and death, can never enter.

Oh! if, when the stern Archer raised the latch at the chamber door of the lamented, the prayers of relatives and friends, especially of that disconsolate wife, whose anguish is as deep and pure as hers of Nain, or of that Mary, whose lament for Lazarus moved the heart of a Savior until his eyes like an infant's wept, could have staid the footsteps of an unwelcome visitor, the shaft for the loved one would have rested in the quiver. But a voice from the spirit-land spoke! The arrow sped! The bright mark was struck.

> Life's labor done,
> Serenely to his final rest he passed;
> While the soft memories of his virtues yet linger
> Like sunlight hues when the bright sun has set.

Nor the words of condolence, nor the wail of lamentation can call his spirit back to reanimate the cold form that must soon rest beneath the verdure of the sod. That spirit would not revisit the perishing body if it could, for the faith in which he lived, and practiced, and the God in whom he trusted, assure us that the essential thing, the image of its Maker, is clothed in immortality.

He has gone! We shall miss him in the retreat of the Odd Fellow, where he was ever wont to repair to counsel for the relief of distress and the advancement of human happiness. The hand that was ever open to a brother in friendship or distress, we shall grasp no more, no more—the eye that ever sparkled with conscious rectitude is sealed with the leaden weight of death—the face, that ever wore a kindly smile for all, we shall see on earth no more. He will be missed from the family circle—oh! how much, the pangs of those crushed hearts alone can tell.

Yet he lives, and will continue to live in the memory and affections of all who knew him. Though unseen, he still lives—though dead he yet speaketh. And while he lives in our memories and affections, oh! consoling thought, we have good hope that he lives in that heaven of joy which is to make amends for all the sorrows of earth.

Brethren, we should learn the lesson this sad occasion is designed to teach us. We should look forward to the event which must happen to each of us, not with the timidity which paralyses exertion, but with the calm confidence inspired by the belief that life has been bestowed upon us by an All-wise Creator, as a gift to be employed for the advancement of human happiness; and with the determination that, come when it may, death shall find us endeavoring faithfully to discharge all the duties of life.

By consent of the Board, Mr. Sutherland was authorized to contract with Prof. Wilbur to make balloon ascensions on Thursday and Friday, at $100 for each ascension.

Mr. Fielding Beeler called the attention of the Board to the handsome side saddles which Messrs. Sulgrove and Hereth, of Indianapolis, had offered as prizes for "Lady Equestrianism."

Mr. Poole offered the the following resolution:

Resolved, That our thanks are hereby tendered to Messrs. James Sulgrove and J. C. Hereth & Co., for their donation of two side saddles, to the best "Lady Equestrians," the same to be awarded as premiums during the present Fair.

Mr. Hamrick offered the following resolution:

Resolved, That the riding by the Ladies for the above prizes, take place at 11 o'clock A. M., on Friday.

The Board then adjourned.

NOON SESSION, 12 o'clock M.

The Board met.

Dr. George W. McConnell in the chair.

Ordered, That each member of the Board be entitled to five meal tickets.

The Board then appointed sundry Awarding Committees.

Adjourned.

AFTERNOON SESSION, 3 o'clock, P. M.

The Board was called to order by President Hamrick.

Mr. Sutherland moved that the Plowing Match be held inside the Fair Grounds.

Mr. ——— moved the following amendment:

That Messrs. Danaldson, Sutherland and North, be appointed a committee to examine grounds suitable for the plowing match, and report at the evening meeting.

Which amendment was carried.

The Board then adjourned until 7½ o'clock P. M.

EVENING SESSION, BATES HOUSE, 7½ o'clock P. M.

The Board met.

President Hamrick in the chair.

All the members present.

On motion of Mr. Sutherland, the Board proceeded to the appointment of Awarding Committees.

Seventeen committees were appointed.

The Board adjourned until 9 o'clock A. M., to-morrow.

FAIR GROUNDS, September 29, 1869.

President Hamrick in the chair.

A full Board present.

The minutes of the 28th, were read and corrected.

The Committee on Plowing were not ready to report.

On motion of Mr. Poole, Mr. Crim was added to the committee to select proper ground and make arrangement with the owners thereof, and superintend the trial of plows.

The committee thus changed stands:

Messrs. Danaldson, Sutherland, North and Crim.

On motion of Mr. Poole, the President was *ordered* to select a suitable man to take charge of the Committee books, deliver the same to the committees, and instruct them in their duties, and receive the reports as made by committees.

The President selected Mr. John H. Batty, Assistant Secretary, from Marion.

The Board then adjourned.

EVENING SESSION, BATES HOUSE.

The Board met.

President Hamrick in the chair.

A full attendance of the Board.

Fifteen additional Awarding Committees were appointed.

The Board then adjourned.

FAIR GROUNDS, September 30, 1869.

President Hamrick in the chair.

A full attendance of the Board.

Several committees were appointed and minor other matters attended to, appertaining to the Fair and its management.

The Board then adjourned.

BATES HOUSE, October 1, 1869.

President Hamrick called the Board to order.

Mr. Poole moved the following:

Ordered, That the Secretary be *directed* to issue no orders on the Treasurer for Premiums awarded to Isaac B. Loder, of Rush county, until the said Loder shall have settled a claim held by this Board against him, to the amount of fifty-five dollars.

Several appeals from decisions of Awarding Committees, were presented.

That of Wetherell, Clark & Co., was referred to the Superintendents of Mechanics' Hall, Messrs. Crim and North.

An appeal from J. George Stilz, against sundry awards in class of Field Implements, was referred to the same Committee.

The appeal of Messrs. Groff, Wilson & Burk, in regard to a Portable fence, was laid upon the table.

The Board then adjourned.

FAIR GROUNDS, October 2, 1869.

The Board met.

President Hamrick in the chair.

Mr. Poole offered the following as the *per diem* fees for employees:

Gate keepers	$4 00
Superintendents of Halls	4 00
Committeemen	3 00
Assistant Clerks to the Treasurer and Secretary not to exceed	5 00

Which were adopted.

A communication was received from J. George Stilz, protesting against the award of the Committee in section two Mechanical Department.

The matter was referred to the Secretary, who was ordered to correspond with the said Committee, and obtain their reasons for their decision on display of Agricultural and Farm Implements, and report at the next January meeting. The payment of the premiums to be withheld to that time.

Messrs. E. T. Cox and H. Caldwell, were appointed a Committee to examine certain unenumerated articles and report as soon as possible, as the regular Committee had not completed their examinations on account of the accident. (Boiler explosion.)

Messrs. Cox and Caldwell, from the Awarding Committee, reported in favor of awarding a bronze medal to E. Over & Co., of Indianapolis, for their fine exhibition of manufactured steel.

On motion of Dr. McConnell, the Chair was asked to appoint a committee of three, to draft resolutions expressive of the sentiments of the Board for the kindness of the officers of the Surgical Institute, physicians and citizens generally, in their efforts to relieve the unfortunate sufferers by the boiler explosion of yesterday.

Which was carried, and

Messrs. Poole, Williams and Crim, were appointed as such committee, who made the following report:

Your Committee to whom was referred the drafting of resolutions expressive of the feelings of this Board towards Dr. Allen's Surgical Institute, the City Hospital, and the citizens of Indianapolis, for their prompt aid and kind attention to the dead and wounded on the Fair Grounds, on the first day of October, 1869, would respectfully report the following:

Resolved, That the special thanks of the State Board are hereby tendered to the Indiana Surgical Institute, for its prompt and liberal offer to receive and administer to the wants of all the wounded, free of charge, and for their promptness in carrying out that offer.

Resolved, further, That the thanks of the Board are tendered to the officers of the City Hospital, to the press, and to the citizens of Indianapolis, for their kind offers and prompt attention to the dead and wounded, on this distressing occasion.

JOSEPH POOLE,
J. D. WILLIAMS,
WILLIAM CRIM,
Committee.

Which was concured in, and ordered spread upon the record.

A communication was received from S. Hornley & Co., of Richmond, Indiana, protesting against the award of the Committee on section one, Mechanical Department, for the greatest variety and best display of Plows.

Which was referred to the Secretary, he to examine the entry books, and report at the January meeting of the Board.

On motion of Mr. Cox, the claim of Watson Boughart, for whitewashing and coloring, was allowed and ordered paid.

The following bills were allowed by the Board:

General Superintedent, John B. Sullivan, police and labor	$562 00
W. Banghurst, coloring, etc	95 00
G. Wright, digging wells	77 50
W. H. Roll & Co., paper and hanging	76 40
Treasurer and Committees	194 25
Sullivan & Drew, livery	68 50
Band	200 00
John Hauck & Co., sundries	14 65
Jacob Landis	5 00
Hahn & Bals, water casks	10 00

Coburn & Jones, lumber	134 48
Saunders & Rockwell, pumps	44 50
J. H. Baldwin & Co., soap, etc	23 80
J. H. Vajen & Co., hardware	27 34
C. Freese & Co., hardware	6 82
Total	$1,540 24

The Board then adjourned.

BATES HOUSE, October 2, 8 o'clock P. M.

The Board met.

President Hamrick in the chair,

With Messrs. Sutherland, Caldwell, Cox and Heron present.

The bill of R. M. Crosby & Co., for lumber in Fine Art Hall, was referred to the President and Secretary for settlement.

On motion of Mr. Cox, the following was unanimously adopted:

Resolved, That there be added to the gate receipts of to-day an amount sufficient to make the sum of five hundred dollars, to be placed in the hands of the President, to be given to the sufferers by the late accident on the fair ground.

It was further

Ordered, That all premiums donated to the Society for the same purpose, be also placed in the hands of the President.

By consent it was

Ordered, That the hotel bill of Hon. N. J. Turney, member of the Ohio State Board of Agriculture, and Hon. J. H. Klippart, Secretary of the same Board, be paid.

Thomas & Mast, of Springfield, Ohio, donated their premium of ten dollars on best wheat drill, to the sufferers' fund, which was accepted.

The Board then adjourned.

STATE HOUSE, EXECUTIVE BOARD ROOMS,
OCTOBER 4, 1869.

President Hamrick in the chair,

With Messrs. Cox, Caldwell, Sutherland and Heron present.

By order of the Board, Secretary Beeler was authorized to collect all city subscriptions remaining unpaid.

The premiums awarded to S. Horney & Co. and "N. Kimball by S. Beard," for three horse plow with arrangement for attaching three horses, was ordered to be withheld until the January meeting, and the Secretary was instructed to correspond with the Awarding Committee to know the *reason for such award.*

A communication was received from Messrs. Groff, Wilson and Burk appealing from the decision of the Committee upon Portable Fences.

The communication of S. C. Frink, appealing from the award of the Committee upon Wood Bending Machines, was laid upon the table, no sufficient reasons being given to induce a change of award.

The communication of H. E. Jones, in reference to the award of premiums upon architectural drawings, was also laid upon the table, the award of the Committee in question being deemed satisfactory to the Board.

The appeal of H. S. Clark, for Witherell, Clark & Co., with reference to award of Committec on Pumps, was referred to Messrs. North and Crim for investigation.

The appeal of John M. Youart from the decision of the Committee on Surgical Instruments, section 19 of the Mechanical Department, was laid upon the table, there being no evidence presented of fraud upon the part of the Committee.

The appeal of R. S. Lukens & Co. and F. S. Newby from the decision of the Committee on Ditching Machines, section 6, Mechanical Department, was laid upon the table, as the Board were satisfied with the reasons given by said committee for their awards.

SEVENTEENTH
ANNUAL INDIANA STATE FAIR,
HELD AT
INDIANAPOLIS, INDIANA,
COMMENCING ON MONDAY, SEPTEMBER 27, 1869, AND ENDING SATURDAY, OCTOBER 2, 1869.

This is believed to have been the most successful Fair ever held in the State, or in the Northwest. Three requisites are regarded as indispensable to what may be termed success in State Fairs: First, a satisfactory exhibition in all the departments; second, sufficient receipts to meet the prompt payment of all the premiums awarded, the current annual expenses, and a healthy balance in the treasury; and third, favorable weather. All of these favors have been abundantly enjoyed by officers and members of the Board, as also by the many thousands of exhibitors and spectators.

RULES AND REGULATIONS.

The following are the Rules and Regulations under which the State Fair was held. It appears necessary to publish these in connection with the premiums awarded, as being frequently explanatory of the action of committees, and also of the rulings of the State Board in cases of protest and appeals, which are of frequent occurrence during the progress of the exhibition.

ENTRIES.

1. All entries must be made on Monday and Tuesday, except in cases of unavoidable accident or delay; and no entries will be made after the books are received by the Awarding Committees.

2. Entries must, in all cases, be made on the Secretary's books, and the entry ticket properly attached, before articles or animals will be entitled to a place within the enclosure; and no article can be removed from the grounds until the close of the Fair.

3. No article can compete for more than one premium, unless as a part of a collection in the same class, or "sweepstakes." .

4. No animal will be allowed to be entered in the name of any other person than the *bona fide* owner or his agent; and if any should be entered in violation of this rule, they will not be permitted to receive a premium, although awarded them by the Judges.

ADMISSION.

Single tickets, twenty-five cents each, will be good for one admission only, and will be taken up at the gate, and no checks issued for return.

Single horse and rider, two tickets.
Single carriage and driver, two tickets.
Double carriage and driver, three tickets.
Two-horse wagon and driver, two tickets.

GENARAL REGULATIONS.

1. The Board will carefully preserve all articles while on exhibition during the Fair, but will not be responsible for any losses or accidents that may occur.

2. No person will be allowed in the ring when animals are being exhibited, except the proper committee and marshals.

3. Articles receiving premiums will be designated by the Judges as follows: For the first premium, a red ribbon; for the second, a blue ribbon; and where a complimentary notice is made of an article by the committee, a white ribbon.

4. The State Board or the Executive Committee will be in their office during the week of the Fair. They will appoint all officers, committees, and agents, for the occasion, hear and decide all questions affecting the rights of exhibitors or the duties of employes, and will have general supervision of the exhibition, and all differences between judges and exhibitors in regard to the Rules and Regulations will be referred to the State Board, at their office on the fair grounds, when in session.

5. The Secretary and Treasurer will keep their offices near the entrance to the fair grounds during the week of the fair, and will be ready to do business at all reasonable hours of the day.

6. The Superintendent will provide for the wants of the exhibitors, receive, arrange, and keep in order everything connected therewith; see that good order is maintained within the enclosure, and keep the State Board, or the Executive Committee, well advised of everything connected with the exhibition. He will be aided in the discharge of these duties by an assistant to each hall; also, one to the horse and mule department, and one to the cattle, sheep, and hog department—the several duties of whom shall be to attend *especially* to the department assigned them.

7. An efficient police force will be on the grounds day and night.

8. Ample arrangements will be made in the way of pens, stalls, feed and beeding for stock, but exhibitors will be required to pay fair rates for all grain, meal and hay used by them.

9. Articles for which no premiums are offered will be entered as "Non-enumerated," and will be passed upon by a special committee, complimentary notices of them given and published, and such recommendation as they may be-

entitled to in their judgment. Such recommendation, however, will be subject to the approval of the State Board.

10. Competition will be open to the world, except as otherwise provided herein.

11. Persons entering stock and occupying stalls belonging to the Board will be required to exhibit their stock in their respective rings of entry, and, on failure to do so, will be charged one dollar per day for each stall used.

12. No premiums will be paid, or awards published, for any fruits, vegetables, or grain, either single or in collections, that have not been grown by the individual entering the same.

13. The Board of Agriculture's diploma has been, and shall continue to be considered the highest commendation, and will only be awarded as a first premium. Its medal shall stand next in importance, and cash premium third.

14. Exhibitors of stock will be required to keep their stalls open and their stock accessible to visitors at all reasonable hours during the Fair.

15. Exhibitors and visitors will take notice that no change whatever will be made in the foregoing Rules and Regulations, or in the Instructions to Judges, but that they will be strictly adhered to in every particular.

INSTRUCTIONS TO JUDGES.

1. When a majority of the judges on any section are present they shall constitute a quorum, and be authorized to award premiums; and the first on the list of those present shall be chairman. The judges, if not satisfied as to the regularity of the entry, will apply to the Secretary for information.

2. A premium will not be awarded when the article is not worthy, though there be no competition.

3. The judges on animals will have regard to symmetry, early maturity, size and general characteristics of the breed which they judge. They will make proper allowance for age, feeding, etc., but will not give encouragement to over-fed animals in breeding classes.

4. No premiums will be awarded to barren females shown in breeding classes, and proof of breeding qualities must be exhibited to the committee.

5. The judges of fat cattle will require all cattle in this class to be weighed; ascertain their superfices, and report the same; require of competitors a full statement in writing as to the manner and cost of feeding, before awarding any premium.

6. The standard authority in all cases of pedigrees of cattle shall be The English and American Herd Book, and for horses, The English and American Stud Book and American Turf Register.

7. The judges shall give the reasons for their decisions, embracing the valuable and desirable qualities of the animals or articles to which premiums are awarded; in fruits, to give lists of collections to which they award premiums; and, as one great object of the Agricultural Board is to collect valuable information upon subjects connected with agriculture, the several awarding committees shall gather all the information possible from exhibitors, in their respective departments, and make their reports as full as circumstances will permit.

8. Each committee will make its report of awards to the Secretary, or the superintendents of the department, after they have completed the report.

9. The decisions of the several committees will be final and irrevocable in regard to the premiums awarded, except upon positive proof of fraud, collusion or gross and palpable mistake on the part of the judges.

10. Any improper interference with the duties of the awarding committee will be promptly reported to the business office, and awards be withheld for this reason; but

when called upon by the proper committees they are requested to give all information in their possession to facilitate the labors of the committee.

It is especially desirable that every exhibitor determine fully in what class and section he desires to compete before making application for entries.

PROGRAMME.

MONDAY, FIRST DAY—Entry of stock and articles for exhibition, and the arrangement of the same upon the Fair grounds.

TUESDAY, SECOND DAY, A. M.—Continuation of entries; 12 M., the best racking horse or mare, premium $25, second best, $10; 2 P. M., best family driving horse, one and a half mile heat to spring wagon, with 500 pounds weight, premium $50, second premium $25.

WEDNESDAY, THIRD DAY, 9 A. M.—Calling committees; 10 A. M., exhibition of thorough-bred horses in ring fronting the amphitheater; also, the plowing match, in which the plows for general purposes will be thoroughly tested, (see rules, section 1, Mechanical Department). 11 A. M., heavy draft horses in the ring; 1 P. M., exhibition of breeding cattle in the cattle ring; examination of sheep and hogs; 2 P. M., best trotting stallions on time track, premium $100, second premium $50; 3:30 P. M., best pacing stallions, premium $100, second premium $50.

THURSDAY, FOURTH DAY, 9 A. M.—Examination of horses for general purposes in their order in the horse ring; 11 A. M., exhibition of matched horses in their order; awarding premiums on all classes during the entire day; trial of threshers, drag saws, saw mills, &c.; 1 P. M., best pacing gelding or mare, premium $100, second premium $50; 3

P. M., trial of bicycles, fancy management by gentlemen, premiums $25 and $15; at 4 P. M., best trotting mare or gelding, premium $100, second premium $50.

FRIDAY, FIFTH DAY, A. M.—Continuation of awarding premiums, closing up of examination of articles in general; 1 P. M., the sweepstake trot, open to all, for premium of $200; 3 P. M., best and quickest time, *mile trials*, for bicycle operators, premium $50, second premium $25.

SATURDAY, SIXTH DAY—Payment of cash premiums, settlement of claims, sale of stock, &c.

PREMIUMS AWARDED.

LIVE STOCK DEPARTMENT.

THOMAS V. MITCHELL, Attending Member in Charge.

SECTION I—THOROUGH BRED HORSES.

Stallion, four years old and over, three entries.

J. D. Smith, Crawfordsville, Montgomery county, Indiana, first premium	$50 00
J. H. Elliott, Lafayette, Indiana, second premium	25 00
Brood Mare, Nathan Hammond, Greencastle, Putnam county, Indiana, first premium	30 00

WM. SWEETZER,
WM. A. PLACE,
ALFRED REEL,
Committee.

SECTION II—HORSES FOR GENERAL PURPOSES.

Stallion, four years and over, fifteen entries.

Wm. F. Hamrick, Danville, Hendricks county, Ind., first premium	50 00

Hendricks County Stock Company, Plainfield, Ind., second premium	$25 00

Stallion, three years old and under four, two entries.

Levi Wilcox, Yountsville, Montgomery county, Ind., first premium	40 00
Second premium, no award.	

Stallions, two years old and under three, five entries.

J. S. Hardin, Indianapolis, Indiana, first premium	20 00
Wm. F. Hamrick, Danville, Indiana, second premium	10 00

Stallion, one year old and under two, three entries.

David R. Smock, Southport, Marion county, Ind., first premium	10 00
Wm. F. Hamrick, Danville, Indiana, second premium	5 00

Stallion Sucking Colt, six entries.

Wm. P. Swine, Bellemore, Parke county, Indiana, first premium	8 00
Wm. F. Hamrick, Danville, Indiana, second premium	4 00

Mare, four years old and over, sixteen entries.

Levi Wilcox, Yountsville, Montgomery county, Indiana, first premium	30 00
James Galloway, Yountsville, Indiana, second premium	15 00

Mare, three years old and under four, three entries.

Wm. F. Hamrick, Danville, Indiana, first premium,	20 00
Thomas Heron, Falmouth, Rush county, Indiana, Second premium	10 00

Mare, two years old and under three, five entries.

Wm. F. Hamrick, Danville, Indiana, first premium,	$10 00
Cal. Balis, Falmouth, Rush county, Indiana, second premium	5 00

Mare, one year old and under two, four entries.

Branson & Kelly, Bloomingdale, Parke county, Ind., first premium	10 00
Wm. F. Hamrick, Danville, Indiana, second premium	5 00

Sucking filly, four entries.

Roland Clark, Danville, Indiana, first premium	8 00
Wm. F. Hamrick, Danville, Indiana, second premium	4 00

Gelding, four years and over, twelve entries.

R. R. Spencer, Clarksburg, Decatur county, Ind., first premium	20 00
Reese Hammond, Greencastle, Indiana, second premium	10 00

Wm. Sweetzer,
W. A. Place,
Alfred Reel,
Committee.

SECTION III—ROADSTERS AND LIGHT HARNESS HORSES,

Stallion, four years old and over, ten entries.

Hendricks County Stock Company, Plainfield, Ind., first premium	50 00
F. Dickson, Versailles, Ripley county, Indiana, second premium	25 00

Stallion, three years old and under four, four entries.

Isone Giffin, Deming, Hamilton county, Indiana, first premium	40 00

Wm. H. Bennett, Richmond, Wayne county, Ind., second premium	$20 00

Stallion, two years old and under three, two entries.

Jasper Oliver, Morton, Putnam county, Indiana, first premium	20 00
W. Harris, Brownsburg, Indiana, second premium	10 00

Mare, four years old and over, fifteen entries

Frank Cunningham, Indianapolis, Indiana, first premium	20 00
A. H. Jackson, Plainfield, Indiana, second premium	10 00

Mare, three years old and under four, one entry.

W. H. Hughes, Brownsburg, Indiana, first premium	20 00

Gelding, four years old and over, twelve entries.

A. H. Jackson, Plainfield, Indiana, first premium	20 00
Jacob Kennedy, New Elizabeth, Hendricks county, Indiana, second premium	10 00

Best Family Driving Horse, to be exhibited on time track, one and a half mile heat to spring wagon and five hundred pounds added, five entries.

L. W. Moses, Indianapolis, Indiana, first premium	50 00
W. N. Crane, Indianapolis, Indiana, second premium	25 00

In making the awards in the foregoing section, Mr. J. F. Bonner and J. J. Terrell acted as Committee, except in the last award.

D. C. Donohue,
F. M. Denny,
Dan. S. Jordon,
Committee.

SECTION IV.

Heavy Draft Horses, twelve entries.

Gallion French Horse Company, Gallion, Crawford county, Ohio, first premium	$50 00
Miller & Bro., Richmond, Union county, Ohio, second premium	25 00

Stallion, three years old and under four, four entries.

E. S. Frazee, Orange, Fayette county, Indiana, first premium	40 00
Gallion French Horse Company, Gallion, Crawford county, Ohio, second premium	20 00

Mare, four years old and over, three entries.

Drury Clark, Pittsboro, Hendricks county, Indiana, first premium	30 00
John Walker, Rushville, Rush county, Indiana, second premium	15 00

Mare, three years old and under four, two entries.

Cal. Balis, Falmouth, Rush county, Indiana, first premium	20 00
Cal. Balis, Falmouth, Rush county, Indiana, second premium	10 00

Your Committee in making their examinations in this class, have been much delighted and instructed by their examinations. The exhibition made by the Gallion French Horse Company presents to Indiana a new feature in this class of valuable commercial and economical conveyance of our heavy merchandise and must greatly facilitate the handling of transfer freights. This whole class possess great merit, and your Committee only regret that they were not clothed with power to *reward* all in accordance with their merit.

W. C. Donohue,
J. J. Terrell,
J. H. Snell,
Committee.

SECTION V—TROTTING AND PACING HORSES.

NOTE.—Awards in this class will be made with reference to form, size, style, speed, action and endurance.

Trotting Stallion, six entries.

Isaac B. Loder, Rushville, Rush county, Indiana, first premium, time 2:46	$100 00
T. L. Denny, Booneville, Warrick county, Indiana, second premium, time 2:48	50 00

Trotting Gelding or Mare, nine entries.

Isaac B. Loder, Rushville, Rush county, Indiana, first premium, time 2:39	100 00
Payne & Powell, Henderson, Henderson county, Kentucky, second premium, time 2:38	50 00

Pacing Stallion, five entries.

W. P. Swim, Bellemore, Parke county, Indiana, first premium, time 2:34	100 00
John Williams, Franklin, Johnson county, Indiana, second premium, time 2:51½	50 00

Pacing Gelding or Mare, ten entries.

James Wilson, Rushville, Rush county, Indiana, first premium, time 2:25	100 00
J. G. Niblack, Brazil, Clay county, Ind., time 2:31½, second premium	50 00

Racking Horse, Mare or Gelding, five entries.

Willis P. Wood. Greencastle, Ind., first premium	25 00
James Wilson, Rushville, Rush county, Indiana, second premium	10 00

Trotting Double Team, four entries.

Isaac B. Loder, Rushville, Rush county, Indiana, first premium	50 00

J. Spencer, Stone Bluff, Fountain county, Indiana, second premium	$25 00

Respectfully submitted as our report of awards in the above class.

D. C. Donohue,
F. M. Denny,
Daniel S. Jordan,
Committee.

SECTION VI—MATCHES OR SINGLE HORSES FOR GENERAL PURPOSES.

Pair Matches, Geldings or Mares, ten entries.

R. R. Spencer, Clarksburg, Decatur county, Indiana, first premium	50 00
James Galloway, Yountsville, Montgomery county, Indiana, second premium	25 00

Mare or Gelding, four years old and over, two entries.

No premiums awarded.

Pair Roadsters Matches, Geldings or Mares, nine entries.

J. S. Colwell, Lewisville, Henry county, Indiana, first premium	40 00
E. B. Carter, Clayton, Hendricks county, Indiana, second premium	20 00

Gelding or Mare, four years and over, three entries.

No premiums awarded.

Heavy Draft Team, three entries.

W. P. & E. P. Gallup, Indianapolis, Indiana, first premium	40 00
John Walker, Rushville, Rush county, Indiana, second premium	20 00

Heavy Draft Gelding or Mare, four years and over, three entries.

W. P. & E. P. Gallup, Indianapolis, Indiana, first premium $20 00
W. P. & E. P. Gallup, Indianapolis, Indiana, second premium.. .... 10 00

SADDLE HORSES—EXHIBITED ON TIME TRACK, UNDER SADDLE.

Gelding of any age, five entries.

William M. Jones, Indianapolis, Indiana, first premium 20 00
Marxe Herbert, Pittsborough, Hendricks county, Indiana, second premium.......................... 10 00

Mare of any age, ten entries.

Leonard Hackney. Edinburg, Johnson county, Ind., first premium.......................... 20 00
Sylvanus Barnard, Martinsville, Morgan county, Indiana, second premium.......................... 10 00

D. C. Donohue,
J. J. Terrell,
J. F. Bonner,
Committee.

SECTION VII—SWEEPSTAKES ON HORSES.

Stallion of any age or class, thirty-two entries.

Branson & Kelly, Bloomingdale, Parke county, Ind., premium 75 00

Mare of any age or class, sixteen entries.

R. Cassity, Clarksburg, Decatur county, Indiana, premium 50 00

Stallion, showing five best colts, under one year, two entries.

W. P. Swim, Bellmore, Parke county, Ind., premium.. .... 100 00

Trotting Mare or Gelding, (see rule, section five.) nine entries.

Isaac B. Loder, Rushville, Rush county, Indiana, premium	$200 00

A. Ketcham,
R. R. Spencer,
J. W. C. Shilts,
Committee.

SECTION VIII—JACKS, JENETS AND MULES.

Jack three years old and over, six entries.

Warren Hardwick, Danville, Hendricks county, Ind., first premium	40 00
J. P. Root, Milroy, Rush county, Indiana, second premium	20 00

Jack two years and under three, two entries

Charles P. Johnson, Broad Ripple, Marion county, Indiana, first premium	30 00
William Brumfield, Augusta, Marion county, Ind., second premium	15 00

Jennet three years and over one entry.

Charles P. Johnson, Broad Ripple, Marion county, Indiana, first premium	15 00

Mule three years and over; three entries.

Thomas O. Allen, Greencastle, Putnam county, Indiana, first premium	10 00
John Walker, Rushville, Rush county, Indiana, second premium	5 00

Mule two years and under three, eight entries.

Edward Courtney, Danville, Indiana, first premium	10 00
Henry W. Harding, Crawfordsville, Indiana, second premium	5 00

Pair of Mules three years and over, four entries.

John Walker, Rushville, Rush county, Indiana, first premium $30 00

L. D. Foudray, Indianapolis, Indiana, second premium 15 00

J. R. Cook,
Samuel Cutsinger,
W. T. Carnahan,
Committee.

SECTION IX—SWEEPSTAKES ON JACKS AND JENNETS.

Jack, any age, seven entries.

J. P. Root, Milroy, Rush county, Ind., premium, silver medal and 30 00

Jennet, any age, one entry.

Charles P. Johnson, Broad Ripple, Marion county, Ind., premium, silver medal and.................. 20 00

A. Ketcham,
R. R. Spencer,
J. W. C. Shilts,
Committee.

CATTLE.

Hezekiah Caldwell, Attending Member, Superintendent.

SECTION X—BREEDING CATTLE.

Bull, four years old and over, three entries.

J. M. Woodruff, Nineveh, Johnson county, Ind., first premium 75 00

Very large; deep red; smooth; good feeder; weight, 2,500 pounds.

George S. Wren, North Salem, Boone county, Ind., second premium.................................. 35 00

Not so large as entry No. 3 (Woodruff's), but very smooth; more pounds in less circumference; five years old; brown; weight, 2,000 pounds.

Bull, three years old and under four, two entries.

F. Baldridge, Hagerstown, Wayne county, Ind., first premium	$50 00

Very good in chest and shoulder; hind-quarter not first-rate; weight 1,727 pounds.

Thomas O. Allen, Greencastle, Putnam county, Ind., second premium	25 00

Red; deficient in chest; very good in the hind-quarters; weight, 1,827 pounds.

Bull, two years old and under three, three entries.

Charles Loder, Plainfield Hendricks county, Ind., first premium	30 00

Two years and four months old; weight, 1,900 pounds.

Baldridge & Huffman, Hagerstown, Wayne county, Ind., second premium	15 00

Two years and seven months old; weight, 1,557 pounds.

Bull, one year old and under two, four entries.

W. W. Thrasher, Connersville, Fayette county, Ind., first premium	20 00

Roan; one year and seven months old; very good in all his parts; weight, 1,252 pounds.

George S. Wren, North Salem, Hendricks county, Ind., second premium	10 00

Roan; one year and one day old; weight, 820 pounds.

Bull Calf, three entries.

Alonzo Tyner, Greenfield, Hancock county, Ind., first premium	10 00

White roan; five months old; a beauty; weight, 825 pounds.

Thomas O. Allen, Greencastle, Putnam county, Ind., second premium.............................. $5 00

Red and white spotted; three months old; weight, 480 pounds.

Cow, four years old and over, three entries.

W. W. Thrasher, Connersville, Fayette county, Ind., first premium.............................. 30 00

Roan; large and smooth; very fine back and chest; good quarters.

J. M. Woodruff, Nineveh, Johnson county, Ind., second premium................ .... 15 00

Red; good size and well proportioned; not quite so good as entry No. 1.

Cow, three years old and under four, three entries.

W. W. Thrasher, Connersville, Fayette county, Ind., first premium.............................. 20 00

Three years and six months old; points all good; weight, 1,350 pounds.

Thomas O. Allen. Greencastle, Putnam county, Ind., second premium.......................... 10 00

Red; three years and one month old; points good; weight, 1,255 pounds.

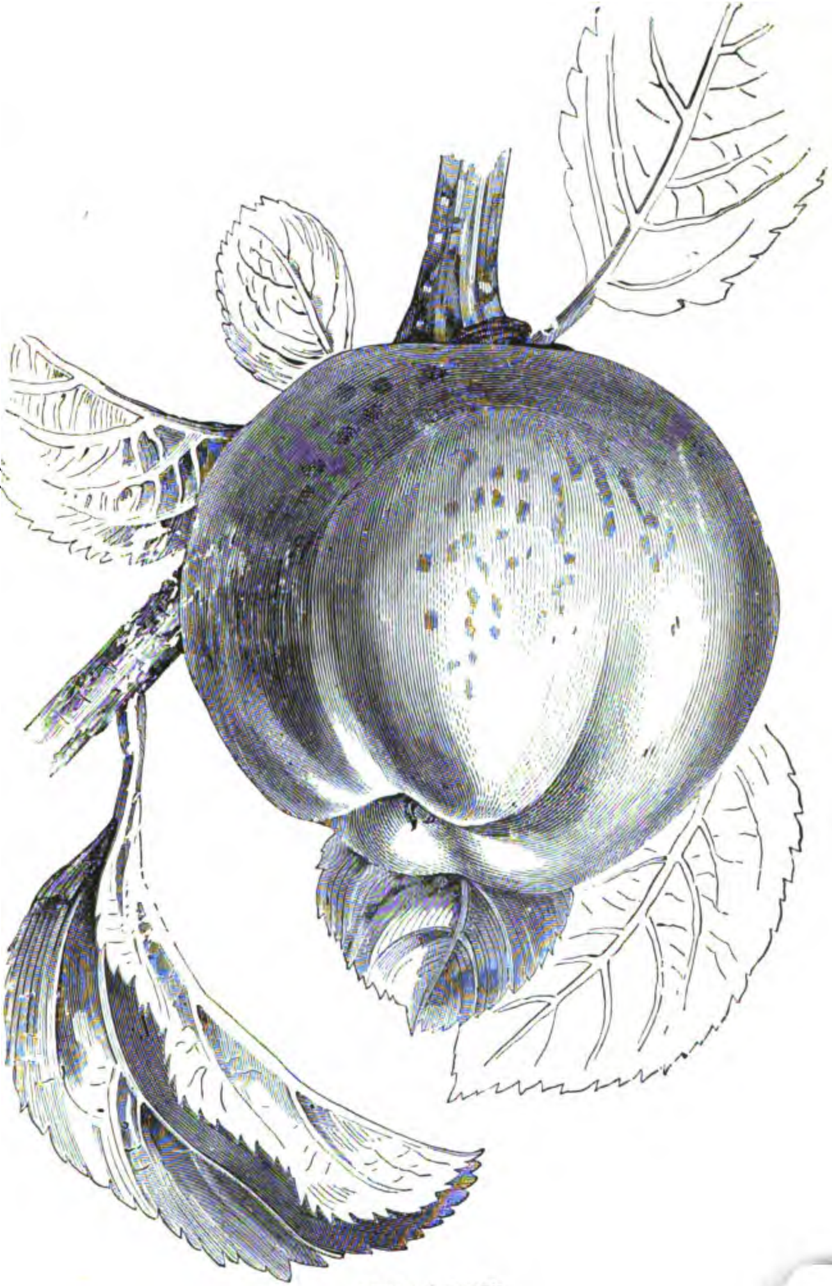
Cow, two years old and under three, three entries.

W. W. Thrasher, Connersville, Fayette county, Ind., first premium.............................. 20 00

W. W. Thrasher, Connersville, Fayette county, Ind., second premium.......................... 10 00

Heifer, one year old and under two, eight entries.

W. W. Thrasher, Connersville, Fayette county, Ind., first premium.............................. 10 00



APPLE QUINCE.

Roan; points all good; thirteen months old; weight, 930 pounds.

J. M. Woodruff, Nineveh, Johnson county, Ind., second premium.................................$ 5 00

In the foregoing class there were eight entries, all beautiful, and well grown for their ages, weighing from 710 to 1,065 pounds; ages from twelve to twenty-four months, and so near equal in form and beauty that it has been a hard task for your committee to decide. They are all Short-Horns — reds and roans — and, in our opinion, as good a ring as was ever shown on any ground, doing great credit to the exhibitors, and a result in stock-growing of which the State should be proud.

Heifer Calf, six entries.

J. M. Woodruff, Nineveh, Johnson county, Ind., premium.. 10 00

Devon Bull, two entries.

John H. Kenyon, Indianapolis, Ind., premium, silver medal and.................................. 10 00

Devon Cow, three entries.

Samuel Toms, Oshawa, Orleans, Canada, premium, silver medal and.......................... 10 00

Ayrshire Bull, one entry.

George E. Wallace, Indianapolis, Ind., premium, silver medal and.......................... 10 00

Black and white spotted, two years old, weight 1,072 lbs. Your committee do not believe it profitable to breed this variety of cattle, except for dairy purposes.

Alderny Bull, one entry.

J. S. Dunlap, Indianapolis, Marion county, Ind., premium, silver medal and.......................$10 00

Dun color, ugly, very light in hind quarters, only valuable for milk and butter.

Alderny Cow, one entry.

J. S. Dunlap, Indianapolis, Marion county, Ind., premium, silver medal and........................$10 00

White and dun spotted, homely, rough, light in quarters, valuable only as a dairy breed, and said to excel all other breeds for this purpose.

Archibald Johnson,
P. G. Pauly,
Committee.

SECTION XI—OXEN AND STEERS.

Steer, three years and over, one entry.

H. Lingenfelter, Danville, Ind., first premium...... 10 00

Five years old, sixteen hands three inches high, weight 3,094 pounds; common keeping for three years, half feed one year, and full feed one year on corn and blue grass.

Steer, two years and under, two entries.

H. Lingenfelter, Danville, Ind., first premium...... 10 00

Weight 1,550 pounds.

Frank Haynes, Danville, Ind., second premium... 5 00

Weight 1,215 pounds.

Archibald Johnson,
P. G. Pauly,
Committee.

SECTION XII—FAT CATTLE, SHEEP, AND HOGS.

Five Fat Steers, four years old and over, one entry.

Will Bridges, Greencastle, Ind., premium......... 50 00

This is a lot of very fine and well-fatted steers. The following is the weight of three: 2,478, 2,478, 2,800—total 7756—average 2,585⅓ pounds. Full feed on corn last two winters, and blue grass pasture in summer.

Five Fat Sheep, three entries.

Thos. Aston, Elyria, Ohio, premium............. 15 00

Fat Steer, five entries.

H. Lingenfelter, Danville, Ind., first premium	$20 00
Weight 3,094 pounds. (*See Sec.* 11.)	
Will Bridges, Greencastle, Ind., second premium	10 00
Five years old, weight 2,802.	

Fat Cow, two entries.

W. W. Thrasher, Connersville, Ind., first premium	20 00
Weight 1,625 pounds.	
Same, second premium	10 00
Weight 1,410 pounds.	

Fat Sheep, two entries.

Thos. Aston, Elyria, Ohio, premium	5 00
A Leicester ewe, large, fine and fat.	

ARCHIBALD JOHNSON,
P. G. PAULY,
Committee.

SECTION XIII—SWEEPSTAKES ON CATTLE.

Bull, any age, twelve entries.

Frank Haynes, Danville, Ind., premium	75 00

Cow, any age, eight entries.

J. M. Woodruff, Ninevah, Johnson county, Ind., premium	50 00

Bull and Five Calves, not less than six months old, three entries.

Frank Haynes, Danville, Ind., premium	100 00

Your committee find close competition in this class, and all the animals shown are exceedingly fine—doing great credit to the several breeders, and showing conclusively that there is money in short-horns, if our farmers would only give this matter more and better attention.

F. M. DENNY, Angola, Ind.,
S. P. ROBERTS, Whitcomb, Ind.
S. MCIRWIN, Coal Creek, Ind.,
Committee.

SECTION XIV—HOGS.

JACOB MUTZ, Attending Member and Superintendent.

Boar, two years old and over, five entries.

M. B. Penticost & Son, Zionsville, Indiana, first premium	$30 00
J. D. Spahr, Centerville, Wayne county, Ind., second premium	15 00

Boar, one year old and under two, six entries.

T. E. Paddock, Liberty, Union county, Indiana, first premium	25 00
Rankin Baldridge, Hagerstown, Wayne county, Ind., second premium	10 00

Boar, under one year old, twenty-nine entries.

Rankin Baldridge, Hagerstown, Wayne county, Ind., first premium	20 00
George Anderson, Painesville, Lake county, Ohio, second premium	10 00

Sow, two years old and over, four entries.

W. W. Thrasher, Connersville, Ind., first premium	20 00
George Anderson, Painesville, Lake county, Ohio, second premium	10 00

Sow, one year old and under two, five entries.

George Anderson, Painesville, Lake county, Ohio, first premium	20 00
W. W. Thrasher, Connersville, Indiana, second premium	10 00

Sow, under one year. nineteen entries.

L. D. Fox, Greensfork, Wayne county, Indiana, first premium	10 00
George Anderson, Painsville, Ohio, second premium	5 00

Five Shoats, under six months old, ten entries.

Rankin Baldridge, Hagerstown, Wayne county, Indiana, first premium	$20 00
Drook & Ward, Liberty, Union county, Indiana, second premium	10 00

Sow and five sucking pigs, one entry.

Drook & Ward, Liberty, Union county, Indiana, first premium	25 00

Your committee have been greatly instructed and delighted with the examination of this class. The competition was exceedingly close, the specimens mostly of a superior grade, both as to breeds and growth, showing good skill on the part of the exhibitors, besides greatly encouraging a profitable branch of farming. The value of our annual hog crop should be doubled every year for the next six years. It is a profitable receptacle for the spare time of farmers—slops from the kitchen, poor and unmerchantable vegetables, and cereals from the barn and farm, receiving its finishing, golden completion from the corn-field in the autumn, and sure remuneration, as is also sheep and cattle, growing to command a paying price. No man's farm or land can degenerate in fertility by growing stock.

Your committee find sixteen premiums offered in this class, amounting to the pittance of $250, and *seventy entries* on our books. The value of the hogs as breeders now on your grounds, can not be estimated in gross at less than $18,000. Your premiums, looking to value of hog growing in Indiana, should not have been less than $1,500.

S. P. Roberts, Whitcomb, Ind.,
S. McIrvin, Coal Creek, Ind.,
C. Powers, Angola, Ind.,
Committee.

SECTION XV—SWEEPSTAKES ON HOGS.

Boar Any Age, seventeen entries.

M. B. Pentecost, Zionsville, Ind., premium........	$30 00

Sow any age, fifteen entries.

W. W. Thrasher, Connersville, Ind., premium.....	20 00

A. T. Burkett,
J. S. Jessup,
John Dickason,
Committee.

SHEEP.

Rule.—All sheep exhibited must be led into the show ring for examination by the awarding committee; and all sheep of sufficient age to have been shown the past season must have been closely clipped, or if the judges are satisfied that they have not been they should make allowance for the same, and report to the Board.

SECTION XVI—FINE WOOL SHEEP, TO INCLUDE SPANISH AND FRENCH MERINOES, SAXONS, AND THEIR CROSSES.

Best Buck, two years old and over, one entry.

H. S. Rust, Oxford, Butler county, Ohio, first premium..................................	20 00

Buck Lamb, two entries.

H. S. Rust, Oxford, Butler county, Ohio, premium.	5 00

Ewe, two years old and over, two entries.

H. S. Rust, Oxford, Butler county, Ohio, first premium..................................	10 00
H. S. Rust, Oxford, Butler county, Ohio, second premium..................................	5 00

Ewe Lamb, one entry.

H. S. Rust, Oxford, Butler county, Ohio, first premium..................................	5 00

We, the undersigned Committee on Fine Wool Sheep and their Crosses, do certify to the foregoing award being made by us on personal examination.

JNO. W. ZIGLER, South Bend, Ind.,
C. FLETCHER, Indianapolis,
SAMUEL CUTSINGER, Edinburg, Ind.,
Committee.

SECTION XVII—LONG WOOL SHEEP—COTSWOLDS.

Buck, two years old and over, seven entries.

Thomas Aston, Elyria, Loraine county, Ohio, first premium	$20 00
Drook & Ward, Liberty, Union county, Ind., second premium	10 00

Buck under two years old, five entries.

Thomas Aston, Elyria, Ohio, first premium	10 00
E. L. Freeman, Port Huron, Mich., second premium,	5 00

Buck Lamb, six entries.

E. L. Freeman, Port Huron, Mich., premium	5 00

Ewe, two years old and over, five entries.

Thomas Aston, Elyria, Ohio, first premium	10 00
Thomas Aston, Elyria, Ohio, second premium	5 00

Ewe, one year old and under two, five entries.

Thomas Aston, Elyria, Ohio, first premium	10 00
Thomas Aston, Elyria, Ohio, second premium	5 00

Ewe Lamb, five entries.

Thomas Aston, Elyria, Ohio, premium	5 00

A. T. BECKETT,
R. S. STURGEON,
Committee.

SECTION XVIII—LONG WOOL SHEEP—LEICESTERS.

Buck, two years old and over, four entries.

E. L. Freeman, Port Huron, Mich., first premium..	$20 00
Samuel Toms, Oshawa, Ontario, Canada, second premium	10 00

Buck, one year old and under two, four entries.

Thomas Aston, Elyria, Ohio, first premium.......	10 00
E. L. Freeman, Port Huron, Mich., second premium,	5 00

Buck Lamb, two entries.

E. L. Freeman, Port Huron, Mich., premium	5 00

Ewe, two years old and over, six entries.

Thomas Aston, Elyria, Ohio, first premium......	10 00
Thomas Aston, Elyria, Ohio, second premium....	5 00

Ewe, one year old and under two, four entries.

E. L. Freeman, Port Huron, Mich., first premium..	10 00
Thomas Aston, Elyria, Ohio, second premium.....	5 00

Ewe Lamb, two entries.

E. L. Freeman, Port Huron, Michigan, premium..	5 00

A. T. Beckett,
R. S. Sturgeon,
Committee.

SECTION XVIV—SOUTHDOWNS.

Buck, two years old and over, five entries.

Samuel Toms, Oshawa, Canada, first premium...	20 00
Samuel Toms, Oshawa, Canada, second premium..	10 00

Buck, one year old and under two, four entries.

Samuel Toms, Oshawa, Canada, first premium	$10 00
Samuel Toms, Oshawa, Canada, second premium	5 00

Buck Lamb, three entries.

Samuel Toms, Oshawa, Canada, premium	5 00

Ewe, two years old and over, six entries.

Samuel Toms, Oshawa, Canada, first premium	10 00
G. Wilson, Con's Creek, Shelby county, Indiana, second premium	5 00

Ewe, one year old and under two, two entries.

Samuel Toms, Oshawa, Canada, first premium	10 00
Samuel Toms, Oshawa, Canada, second premium.	5 00

Ewe Lamb, two entries.

S. K. Fletcher, Indianapolis, Indiana, premium	5 00

A. T. Beckett,
R. S. Sturgeon,
Committee.

SECTION XX—FINE WOOL, THOROUGH-BRED AMERICAN MERINOS.

Buck, two years old and over, two entries.

Archibald Collins, Portland Mills, Putnam county, Indiana, first premium	20 00
Archibald Collins, Portland Mills, Putnam county, Indiana, second premium	10 00

Buck, one year old and under two, one entry.

Archibald Collins, Putnam county, Indiana, premium	20 00

Buck Lamb, two entries,

Archibald Collins, Putnam county, Indiana, first premium	$10 00
Archibald Collins, Putnam county, Indiana, second premium	5 00

Ewe, two years old and over, two entries.

Archibald Collins, Putnam county, Indiana, first premium	15 00
Archibald Collins, Putnam county, Indiana, second premium	8 00

Ewe, one year old and under two, one entry.

Archibald Collins, Putnam county, Indiana, premium	10 00

Buck showing five best Lambs, one entry.

Archibald Collins, Putnam county, Indiana, premium	30 00

RULE.—Animals not owned by residents of this State at least sixty days before the commencement of the Fair, cannot compete in this section.

We, the undersigned, Committee on fine wool, thoroughbred American Merinos, section 21, do make the foregoing awards on personal examination of the stock on exhibition.

JOHN W. ZIGLER, South Bend, Ind.,
CALVIN FLETCHER, Indianapolis, Ind.,
SAM. CUTSINGER, Edinburg, Ind.,
Committee.

SECTION XXI—SWEEPSTAKES ON FINE WOOL AND OTHER SHEEP.

Fine wool to include Spanish and French Merinos, Saxons and their crosses.

Buck and five Lambs, three entries.

Archibald Collins, Putnam county, Indiana, first premium	30 00

Ewe, any age, two entries.

Archibald Collins, Putnam county, Indiana, premium..$15 00

COTSWOLDS.

Buck and five Lambs, three entries.

Thomas Aston, Elyria, Ohio, premium........... 30 00

Ewe, any age, three entries.

Thomas Aston, Elyria, Ohio, premium........... 15 00

LEICESTERS.

Buck and five Lambs, four entries.

E. L. Freeman, Port Huron, Michigan, preminm.. 30 00

Ewe, any age, three entries.

Thomas Aston, Elyria, Ohio, premium........... 15 00

SOUTHDOWNS.

Buck and three Lambs, two entries.

S. K. Fletcher, Indianapolis, Indiana, premium.... 30 00

Ewe, any age, three entries.

S. K. Fletcher, Indianapolis, Indiana, premium.... 15 00

W. Banks,
T. W. Tuttle,
R. C. Anderson,
Committee.

SECTION XXII—POULTRY.

Pair Black Spanish, four entries.

Wm. C. Smock, Indianapolis, Indiana, premium... 3 00

Pair Bramahs, five entries.	
Vance & Grubbs, Indianapolis, Indiana, premium	$3 00
Pair Polands, one entry.	
John W. Sutherland, Indianapolis, Indiana, premium	3 00
Pair Dorkings, two entries.	
S. K. Fletcher, Indianapolis, Indiana, premium	3 00
Pair Black African Bantams, two entries.	
Vance & Grubbs, Indianapolis, Ind., premium	3 00
Pair Silver Bantams. five entries.	
Frederick Klara, Indianapolis, Ind., premium	3 00
Pair Chickens, any kind, nine entries.	
W. T. Marquis, Cambridge City, Ind., premium	3 00
Pair Tame Geese, three entries.	
Wm. Myer, Indianapolis, Ind., premium Said to be imported; all white, and very fine.	3 00
Pair Wild Geese, one entry.	
W. T. Marquis, Cambridge City, Ind., premium	3 00
Pair Turkeys, one entry.	
W. T. Marquis, Cambridge City, Ind., premium	3 00
Pair Common Ducks, six entries.	
W. T. Marquis, Cambridge City, Ind., premium	3 00
Pair Muscovey Ducks, one entry.	
W. T. Marquis, Cambridge City, Ind., premium	3 00
Pair Pea-Fowls, one entry.	
W. T. Marquis, Cambridge City, Ind., premium	3 00

Pair Guinea Fowls, three entries.

Horace E. Wallace, Indianapolis, Ind., premium...	$3 00

Pair Game Fowls, four entries.

W. T. Marquis, Cambridge City, Ind., premium...	3 00

Collection of Poultry, all kinds, one entry.

W. T. Marquis, Cambridge City, Ind., premium...	3 00

W. O. BANKS,
T. W. TUTTLE,
R. C. ANDERSON,
Committee.

LIVE STOCK, NON-ENUMERATED.

NOTE.—Articles for which no premiums are offered will be entered as "Non-enumerated," and will be passed upon by a special committee, complimentary notices of them given and published, and such recommendation as they may be entitled to in their judgment. Such recommendation, however, will be subject to the approval of the State Board.

W. C. Pitman, Bedford, Lawrence county, Indiana, five Cashmere Kids; considered by your committee as very fine, and we recommend a first-class premium.

Simpson Wallace, Crawfordsville, Ind., five Cashmere Goats; well-grown animals. We recommend the award of a proper premium, believing that the extended growing of this class of stock would be beneficial and profitable.

D. J. Miller, Indianapolis, Ind., cage of Black and White English Rabbits, which your committee find to be fine specimens of an exceedingly mischievous family. We can see no good in them, and make no recommendation.

JAS. B. MULKY,
W. A. PLACE,
M. L. BUNDY,
Committee.

MECHANICAL DEPARTMENT.

WILLIAM CRIM AND BENJAMIN NORTH, Attending Members.

MACHINERY FOR WHICH NO PREMIUMS ARE OFFERED.

The State Board of Agriculture has decied to offer no premiums for saw mills, reapers, mowers, threshers, separators, drag saws and sewing-machines, for the reason that it is not practicable to have such thorough tests and examination of their merits as will be just to the exhibitor. They will, however, provide every necessary facility for their display, and propose as an inducement to manufacturers and dealers in these articles, to appoint an examining committee composed of members of the Board, who will give each article of this kind, such consideration as will enable them to report their respective merits for publication in the annual reports, which will hereafter be ready for distribution at the January meeting of the Board.

JOSEPH POOLE, Fountain Co.,
ALEXANDER HERON, Fayette Co.,
HEZEKIAH CALDWELL, Wabash Co.,
Standing Committee.

PLOWING MATCH.

The plows to be tested by actual trial with a dynamometer, the Board finding ground in which to make the trial, under the following

RULES.

1. The plows to be held by the competitors, or persons appointed by them.
2. Each plow shall open and plow four rounds, back furrowing; the last furrow to be not less than seven inches deep and thirteen wide.
3. In testing the draft, the same plowman shall hold the plow who did the trial plowing—the third and fourth rounds to be the test, which shall be of the size above indicated.

The following points will be considered by the committee in determining the merit of the plows.

1. Gross draught.
2. Weight of Plow.
3. Loss of power in overcoming friction.
4. Net power required to cut and turn furrow slice.
5. Width of furrow slice.
6. Depth of furrow slice.
7. Comparative draught.
8. Simplicity of structure, materials, workmanship, durability and price.

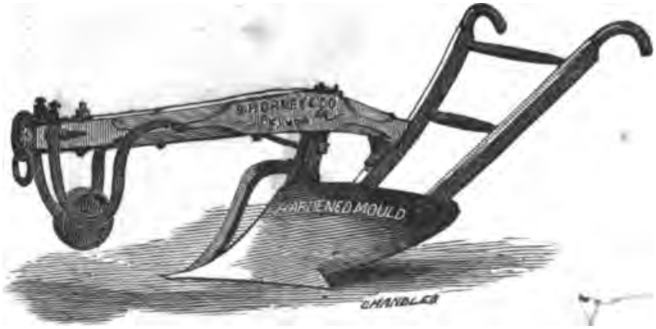
Plowing to take place Wednesday forenoon, according to programme.

Each plowman will find his own team.

Plowing will be done by two horses, the plowman to drive.

Plow for General Purposes, twenty entries.

S. Horney & Co., Richmond, Indiana, premium...$25 00

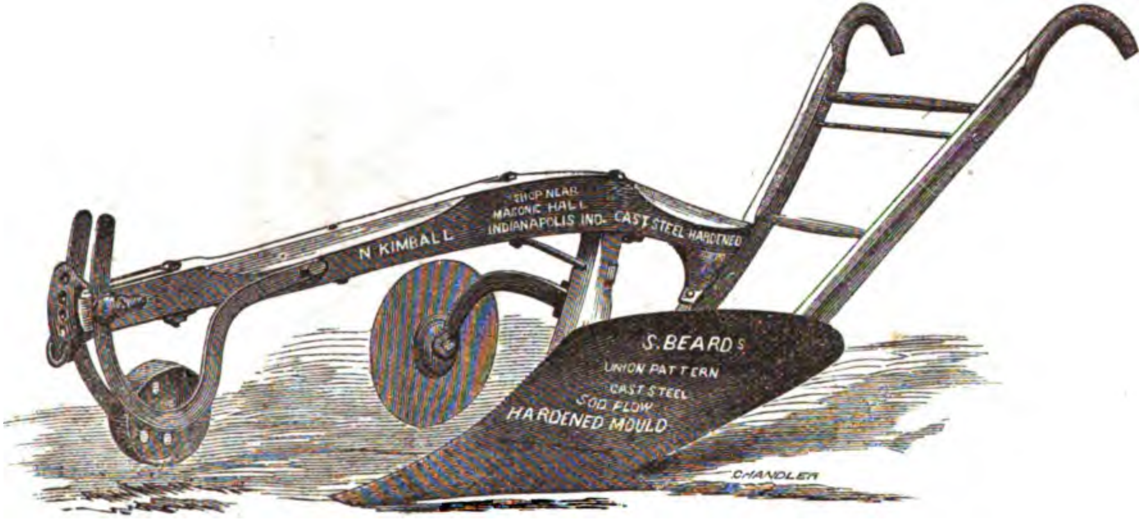


GENERAL PURPOSE PLOW.

Three Horse Plow with best arrangement for attaching three Horses, six entries.

S. Horney & Co., Richmond, Indiana, premium... 15 00

[NOTE.—The Committee say "best attachment to this number," opposite entry number four, being that of N. Kimball, by S. Beard, so that the plow shown by Horney & Co., must have been considered by the committee sufficiently superior to overcome the attachment.—SEC.]



SOD PLOW. (See page 129.)

Best Plow for Alluvial or Muck Soil, five entries.

S. Hornley & Co., Richmond, Indiana, price of plow, $19 50, premium $15 00

Best Sod Plow, eight entries.

(SEE CUT, PAGE 128.)

N. Kimball, by S. Beard, Indianapolis, Indiana, premium 15 00

Best Road Plow, four entries.

S. Horney & Co., Richmond, Indiana, cost of plow, $40, premium 5 00

Plow for breaking Marshes, four entries.

N. Kimball, by Sol. Beard, Indianapolis, Indiana, price of plow, $20, premium 15 00

Hillside Plow, two entries.

S. Horney & Co., Richmond, Indiana, premium ... 5 00

Gang Plow, two entries.

No premium awarded.

Best display and variety of Plows, five entries.

R. L. Lukins, Indianapolis, Indiana, premium, silver medal and 20 00

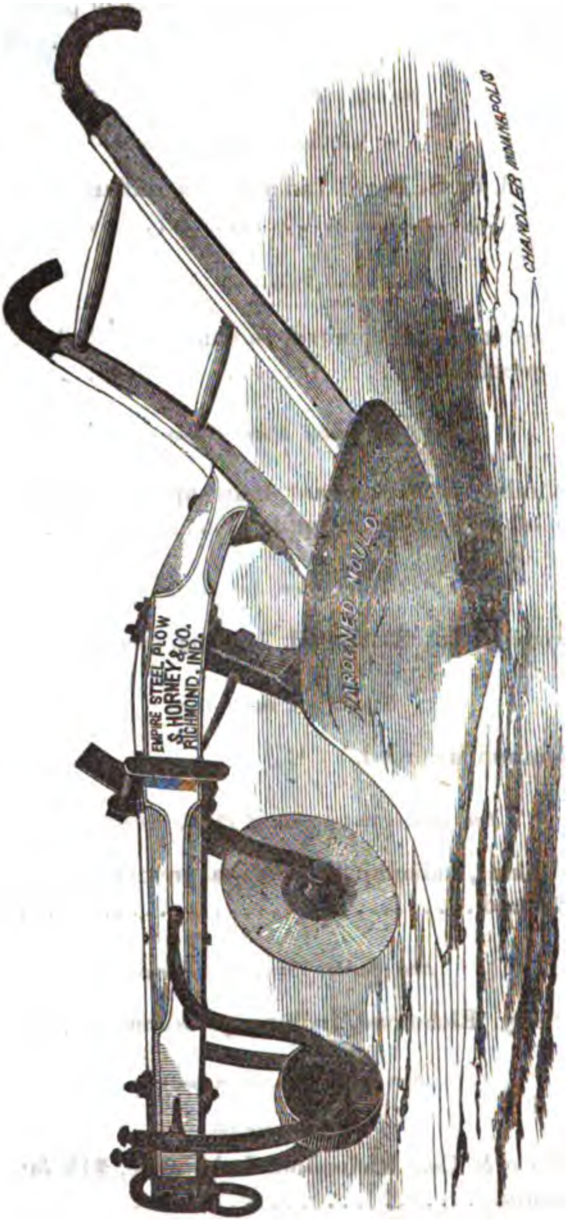
Best Stubble Plow, seven entries.

Orin Perry, Richmond, Indiana, premium 10 00

Best Steel Plow, seven entries.

(SEE CUT, PAGE 130.)

S. Horney & Co., Richmond, Ind.; price, $19 50, premium 10 00



STEEL PLOW. (See page 129.)

Cast Iron Plow, five entries.

S. Horney & Co., Richmond, Ind., premium......	$10 00

Best Double Plow, one entry.

St. Joseph Manufacturing Company, Mishawaka, St. Joseph county, Ind., premium	10 00

Best Subsoil Plow, four entries.

S. Horney & Co., Richmond, Ind., premium......	5 00

Best Dynamometer, three entries.

S. Horney & Co., Richmond, Ind., premium	3 00

Best Steam Plow.

[NOTE.—One entry by S. Horney & Co., but not tested, hence no award. As much as has been said about steam plows through the agricultural press and otherwise, it seems odd that the above plow should not have been tested.—SECRETARY.]

RECAPITULATION AND REPORT OF COMMITTEE.

Trial of Plows.

R. L. Lukins, Indianapolis, No. 2 cast iron plow; weight 113 pounds; depth of cut 7 inches; width 13 inches; average draught 800 pounds.

S. Horney & Co., No. 5 cast iron plow; depth of cut 7 inches; width 13 inches; average draught 700 pounds.

No. 3 cast plow, weight 122 pounds; depth of cut 7 inches; width 13 inches; average draught 700 pounds.

J. George Stilz, cast plow, depth of cut 7 inches; width 13 inches; draught not given.

S. Horney & Co., subsoil plow, Nos. 1 and 4.

R. L. Lukins, three-horse plow, weight 118 pounds; depth of cut 9 inches; width 16 inches; draught in sod 1,050 pounds.

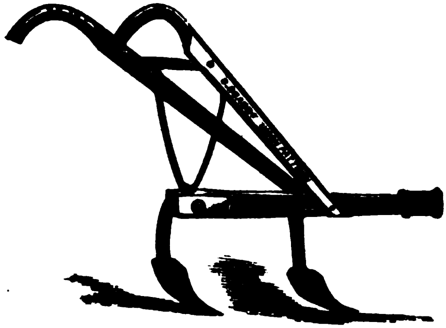
S. Horney & Co., three-horse plow, weight 118 pounds; depth 9 inches; width 16 inches; draught in sod 850 lbs.

N. Kimball by Sol. Beard, three-horse plow for general purposes; weight 157 pounds; depth of cut 9 inches; width 16 inches; draught in sod 1075 pounds.

GENERAL PURPOSE PLOW.

N. Kimball by Sol. Beard, three-horse plow for general purposes, No. 5, weight 107 pounds; depth 9 inches; width 16 inches; draft 1100; which took the first premium for *general purposes*, at the late Indiana State Fair in 1868, as excelling all others in adaptation to all kinds of plowing, lightness of draft, strenth, and durability of construction.

SOD PLOW.



DOUBLE SHOVEL PLOW.

S. Horney & Co., sod plow, weight 108 pounds; depth 7 inches; width 13 inches; draft 525 lbs.

Doty & Co., No. 3 sod plow, weight 111 pounds; depth 7 inches; width 13 inches; draft 600 lbs.

N. Kimball by S. Beard, sod plow No. 4; weight 141 pounds; depth 7 inches; width 13 inches; average draught 700 pounds. (See cut.)

No. 2, Orin Perry, weight 123; width 13 inches; depth 7 inches; draught 850 pounds.

Millikin, Shipley & Co., sod plow, weight 113 pounds; depth of cut 7 inches; width 13 inches; draught 700 lbs.

S. S. Wilson, No. 11 sod plow; weight 117 pounds; width 13 inches; depth 7 inches; draught in sod 700 pounds, in loose ground, 425 pounds.

To the Indiana State Board of Agriculture:

Gentlemen—We, the Committee on Plows and Plowing, have attended to our duty, and would make the following report:

We examined, tested and awarded premiums to No. 13, S. Horney & Co., Richmond, Ind., for best work, general purposes, durability, and simplicity of construction. Price $18.50. Cut 7 inches deep and 13 inches wide, with average draught of 675 pounds in sod, and 550 pounds in loose ground. Weight 142½ pounds.

To No. 1, S. Horney & Co., three-horse plow, for heavy work, for superiority for the purpose; cutting 9 inches deep and 16 inches wide, with average draught of 850 pounds. Weight 118 pounds. Price $21; with attachments, $26.

To No. 4, Kimball, by Beard, Indianapolis, sod plow, for best construction and execution. Cut furrow 7 inches deep and 13 inches wide, with average draught of 700 pounds. Weight 141½ pounds.

To No. 5, cast iron plow, for most finished work. Cut 7 inches deep and 13 inches wide, with draught of 700 pounds. Price $12.

To No. 1, S. Horney & Co., subsoil plow, for superiority. Cut seven inches deep. Price $18.

To No. 2, S. Horney & Co., side-hill plow, for its adaptability.

We also examined and awarded premiums to No. 1, S. Horney & Co., road plow, for superiority in construction, being very substantial and well adapted to its purpose. Price $40.

To No. 1, S. Horney & Co., alluvial plow, for superiority for practical purposes. Price $19.50.

To No. 3, Kimball, by Beard, Indianapolis, Ind., plow for breaking marshes, for most perfect construction for the purpose. Price $20.

To No. 2, O. Perry, Richmond, stubble plow, for general superiority. Price $20.50.

To No. 1, S. Horney & Co., steel plow, for most excellent construction and appearance. Price $19.50.

To No. 1, St. Joseph Manufacturing Company, Mishawaka, double plow; and would say that, although but one could receive the premium, the assortment was most excellent, and, for general purposes, those manufactured by O. Perry, Richmond, Doty & Co., Springfield, Ohio, Kimball & Beard, Indianapolis, Millikan, Shipley & Co., Hamilton, Ohio, and L. S. Wilson, Wabash, are worthy of special mention.

For the best display and greatest variety of plows we awarded the premium to R. L. Lukens of Indianapolis, but we are free to say that those of S. Horney & Co. of Richmond, and the St. Joseph Manufacturing Company of Mishawaka, were very fine. We also examined and tested, though it was not entered, the sulky plow, B. Slusser & Co., manufacturers, Sidney, Ohio, which was entirely new and novel in construction, and did most excellent work, cutting 7 inches deep and 13 inches wide, with a draught of only 500 pounds in sod.

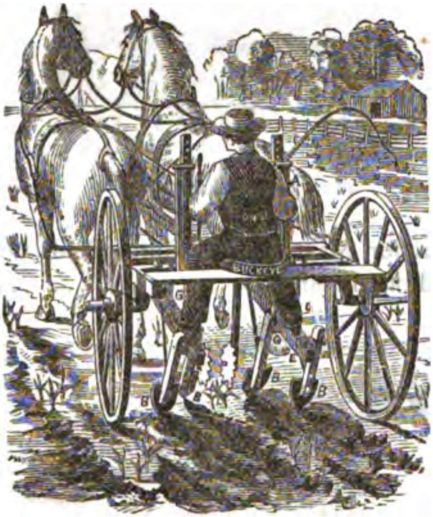
We cannot close this report without mentioning the name of Mr. George Reeves, our Marshall, who was most attentive, courteous and punctual in the performance of his duties.

Respectfully submitted.

A. W. SMITH, Wabash Co., Ind.,
JOHN VAN WIE, Laporte Co., Ind.,
U. H. MEEKER, Fountain Co., Ind.,
B. F. GERARD, Coles Co., Ills.,
Committee

SECTION II—IMPLEMENTS FOR PLANTING AND CULTIVATION OF CROPS.

Two-Horse Corn Plows, five entries.



TWO HORSE CORN PLOW.

J. C. Pearson, Attica, Indiana, premium.......... $5 00

One-Horse Corn Plow, nine entries.

Millikin, Shipley & Co., Hamilton, Ohio, premium, 5.00.

Double Shovel Plow, eight entries.

R. L. Lukens, Indianapolis, Indiana, premium...... 3 00

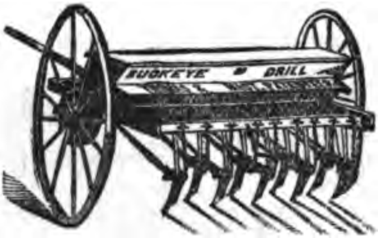
Single Shovel Plow, five entries.

Oran erry, Richmond, Indiana, premium......... 2 00

Cultivator, seven entries.

Walter Smith. Booneville, Indiana premium...... 3 00

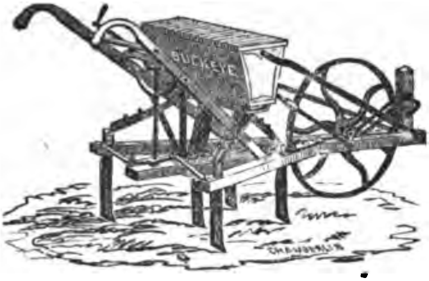
Wheat Drill, eleven entries.



BUCKEYE WHEAT DRILL.

J. Geo. Stiltz, for Mast & Co., Springfield, Ohio, premium diploma and........................$10 00

One-Horse Wheat Drill, ten entries.



BUCKEYE WHEAT DRILL. (By J. George Stilz, Indianapolis.)

J. K. Snyder, Lafayette, Indiana, premium and diploma.. 5 00

Field Roller, one entry.

F. M. Christian, Indianapolis, Indiana, premium... 5 00

Two-Horse Harrow, ten entries.

B. F. Vansickel, premium........................ 5 00

Two-Horse Corn Planter, five entries.

N. Breed, Jeffersonville, Indiana, premium.......Diploma

Potatoe Plow, one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium......Diploma

One-Horse Corn Plow, two entries.

H. H. Hubbard, Edinburg, Indiana, premium....Diploma

Display and greatest variety of Farm Implements, three entries.

R. L. Lukens, Indianapolis, Indiana, premium (award contested)..................Silver Medal

SECTION III—FARM MACHINERY.

Horse Hay Rake, sixteen entries.

A. W. Coats, Alliance, Ohio, premium.....Bronze Medal

Pitcher and Stacker, one entry.

A. J. Nellis, Pittsburg, Penn., premium.....Bronze Medal

Horse Hay Pitchfork, six entries.

A. J. Nellis, Pittsburg, Penn., premium.....Bronze Medal

Clover Seed Gatherer, one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium....Diploma

Fanning Mill, two entries.

H. Osborn, Richmond, Indiana, premium......... 5 00

Machine for Cleaning Wheat by hand, two entries.

H. Osborn, Richmond, Indiana, premium, diploma and.. 10 00

Grain Screen, two entries.

(Not worthy.)

Corn Sheller, five entries.

R. L. Lukens, Indianapolis, Indiana, premium.... 5 00

Grass Seed Sower. one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium...... $3 00

Power Corn Sheller and Separator, one entry.

C. J. Brackebush, Indianapolis, Indiana, premium.. 5 00

Set Tripletrees, for Working Three Horses to Plow or Otherwise, three entries.

J. Geo. Stilz, Indianapolis, Indiana, premium...... 2 00

Eight-Horse Power, four entries.

Eagle Machine Works, Indianapolis, Indiana, premium..............................Bronze Medal

Two-Horse Power, two entries.

Lauer & Cotton, Franklin, Johnson county, Ind., premium..........................Bronze Medal

M. C. Carnahan,
W. S. Lamb,
F. M. Polk,
Committee.

SECTION IV—MILLS, PRESSES, &C.

Portable Grist Mill, one entry.

PORTABLE GRIST MILL.

J. George Stilz, Indianapolis, Indiana, premium................................Silver Medal

Corn-Grinding Mill, one entry.

St. Joseph Manufacturing Company, Mishiwaka, St. Joseph county, Ind., premium.. $5 00

Sorghum Mill for General Use, three entries.

(SEE CUT, PAGE 140.)

D. Root & Co., Indianapolis, Ind., premium..Bronze Medal

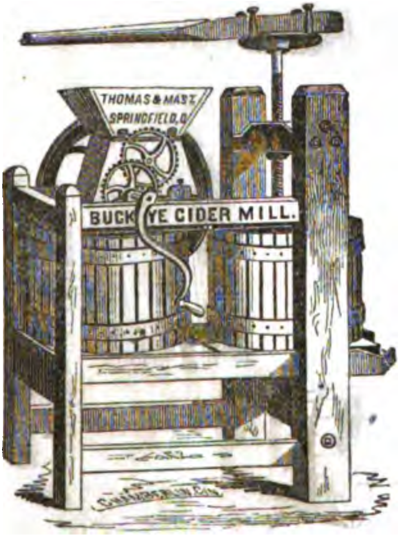
Smut Machine, one entry.

A. Pritz & Son, Dayton, Ohio, premium...Bronze Medal

Flour-Packer, one entry.

Samuel Taggert, Indianapolis, Ind., premium 5 00

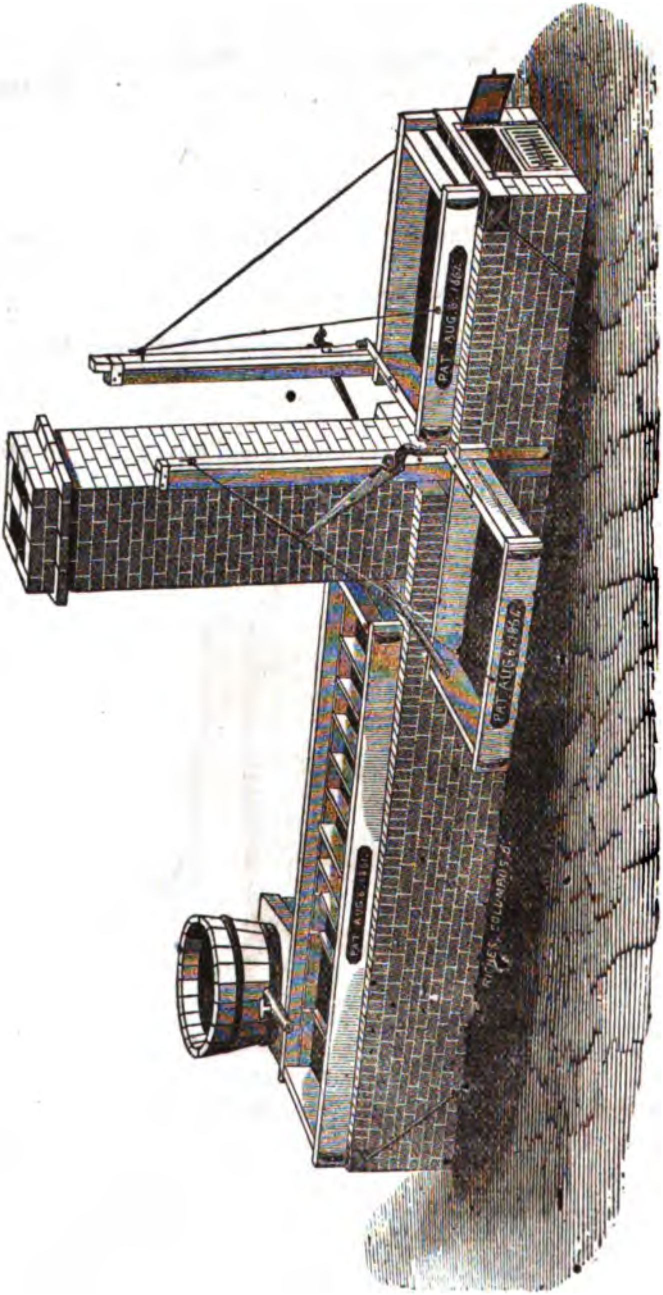
Cider Mill, seven entries.


THOMAS & MAST
SPRINGFIELD, O.
BUCKEYE CIDER MILL.

BUCKEYE CIDER MILL.

J. George Stilz, Indianapolis, Ind., for Thoms and Mast, Springfield, Ohio, premium 5 00

W. H. Miller,
J. W. Emmison,
Committee.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RIDER'S COLUMBUS O.

SORGHUM MILL FOR GENERAL USE. (See page 139.)

SECTION V—DOMESTIC IMPLEMENTS.

Churn, ten entries.

M. W. Wilson, Indianapolis, Ind., premium. $5 00

Cheese Press, two entries.

J. George Stilz, Indianapolis, Ind., premium. 5 00

Clothes Wringer, five entries.

Kimbal, Aikman & Co., Indianapolis, Ind., premium 3 00

Apple Parer, four entries.

Kimbal, Aikman & Co., Indianapolis, Ind., premium 1 00

Wash Board, one entry.

R. L. Lukins, Indianapolis, Ind., premium.. 1 00

Rat Trap, one entry.

Wm. A. Stack, Greensborough, Caroline Co., Maryland, premium..................... 3 00

This trap is simple in its construction, and will catch the rat *if he goes into the trap.*

Hand Loom, one entry.

William T. Hoffman, Indianapolis, Indiana, premium............... ....Silver Medal

Step Ladder, two entries.

G. F. Adams & Co., Indianapolis, Indiana, premium.................................. 1 00

Baby Wagon, one entry.

Charles Mayer & Co., Indianapolis, Indiana, premium.......... .... 1 00

This premium should be largely increased hereafter, as it is a class of manufacturing that should receive increased attention, especially if we expect to populate our vast western domain, now reaching to the Pacific. This invention is far preferable as a *conciliator* to Mrs. Winslow's soothing syrup or the old-fashioned shingle.

Clothes Rack, three entries.

J. Geo. Stilz, Indianapolis, Indiana, premium..... $1 00

Washing Machines, seven entries.

Kimball, Aikman & Co., Indianapolis, Indiana, premium.................................. 3 00

Your Committee have been anxiously looking for a machine that would relieve the house-wife and inmates of our homes and afford *a better dinner on wash days*, but we have not yet found a machine that really and truthfully does the washing. Perfection has only been reached with elbow grease, hot water, good soap, early at it and perseverance. Still, we hope for a better day on Monday.

W. H. MILLER,
J. W. EMISON,
Committee.

SECTION VI—ENGINES, BRICK TILE AND DITCHING MACHINES.

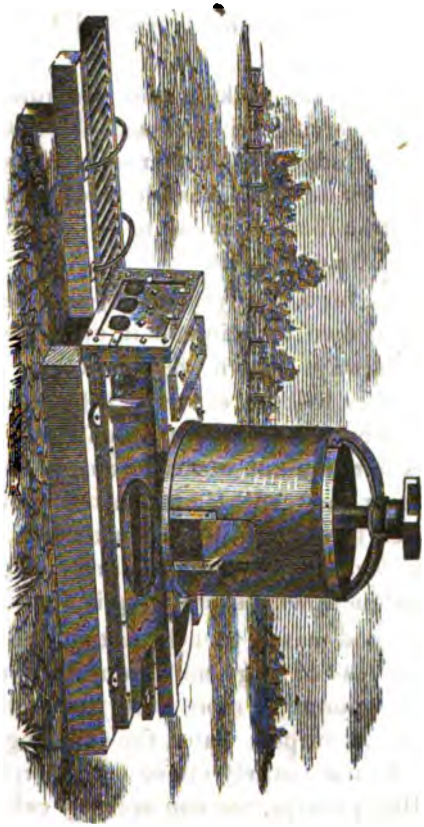
Drain Tile Machine, three entries.

Henry Dawson, Indianapolis, Indiana, premium... Bronze Medal

There probably are some among us who have not yet been called upon to take this subject of underdraining very fully into consideration. It may therefore, in a brief way, be proper to give a short summary of the advantages that are claimed and have been fully realized by those who are well qualified to test its value.

1. It lengthens the season for the growth of crops, by drawing off the surplus water as the frost leaves the ground in the spring, and enables the farmer to have his land in good condition for planting much earlier in the season than when he is compelled to wait the slow process of filtration and evaporation of undrained land.

2. It warms the soil, by preventing the large amount of evaporation that would otherwise carry off most of its heat, leaving the ground cold and chilly, and by the warm air being forced down into the earth to fill the space that would otherwise be a vacuum formed by the passage of the water downward into the level of the drains.



TILE MACHINE.

(Exhibited at the State Fair by Chandler & Taylor, Indianapolis, Ind.)

3. It prevents baking. This follows evaporation from the surface of the rains that may fall upon locations where there is no outlet and usually leaves the ground in such a baked and dried condition as to entirely check the growth of all vegetation upon it, but being properly underdrained, the soil becomes light, porous and productive.

4. It prevents drought, by keeping the soil in such a loose and aerated condition as to invite the rootlets to seek nutriment from a lower level, thus receiving their support from depths that are very rarely reached by the most severe and continued drought.

The subject of tile making and underdraining is from year to year receiving an increased amount of attention; and if we may judge by the interest manifested in this direction at our State Fairs, there cannot be a doubt that it is destined, at no distant period, to be one of our prominent sources of improvement.

Our farmers, for a few years past, have been taking lessons from their own experiments in underdraining and the results have always shown that no other investment of capital and labor will pay so well. It has been abundantly shown that where crops are planted upon well drained land with a fair amount of attention, an entire failure is seldom, if ever, met with; but, on the contrary, he who trusts his seed to a heavy, water-soaked soil, may feel that fortune has favored him with an unusual train of favorable circumstances whenever a crop is made.

We have good reason to believe that the experience of many, in the loss of large and promising crops, has been sufficient in amount to more than thoroughly have freed the land from its surplus water, thus placing it in a condition for future use entirely above such perplexing contingencies. But, perhaps, we can scarcely call this an absoute loss if it arms its victims with high resolves to go on and remove the cause of failure and of proclaiming on every proper occasion the pre-eminent advantages of a proper system of underdraining.

The material for making tile can usually be found wherever they are needed. There is, therefore, no need to incur the heavy expense of transportation from a distance. It only requires that the proper machinery and arrangements for drying, burning, &c., should be gone into to supply each section with this useful means of improvement, almost upon the spot where they are wanted.

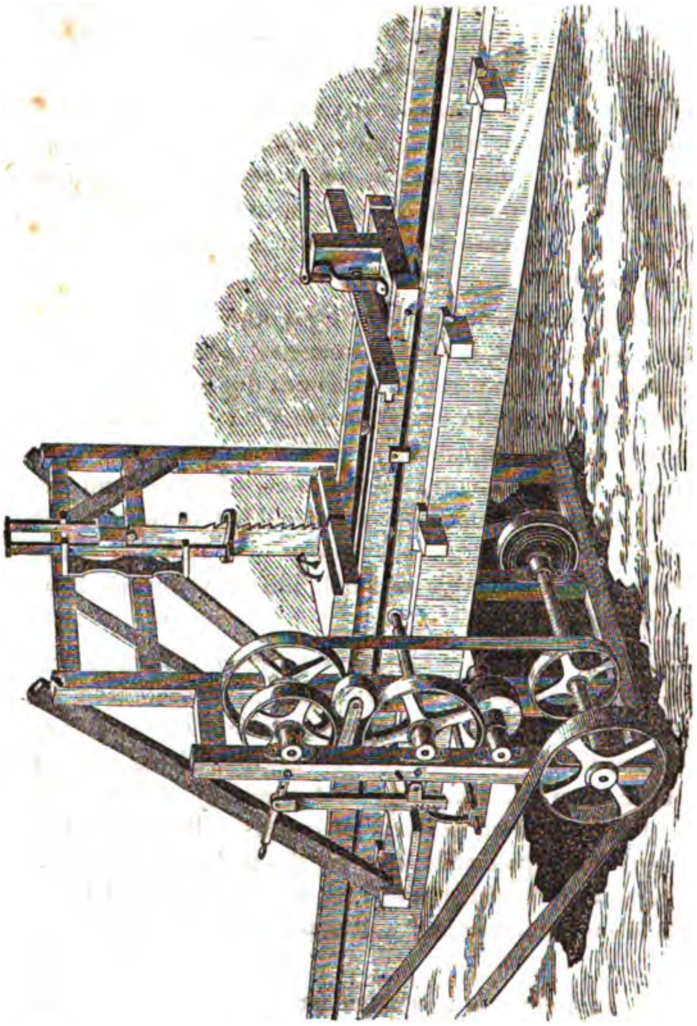
5. It practically increases the number of acres under tillage, by increasing the depth of soil. The roots of the plants do not go down below the water level of the soil upon which they grow, and if that water level is lowered, the result is to increase the number of acres under tillage, without any increase of care or attention.

A well-drained soil becomes light and permeable, its porosity is increased, it has an increased power of absorbing and returning moisture, it becomes dry in wet weather and retains moisture in dry, it absorbs and retains warmth and equalizes the temperature. Soluble substances are carried down, to be taken up by the roots, of plants and the effect of manure is increased, thus making it the interest of every cultivator of the soil to see to it that his entire possessions, be they large or small, hill or valley, shall be properly underdrained.

There is an important lesson to be learned from the report of the department of agriculture at Washington, for this season upon this subject—an estimate of the loss of crops from that department, for this season, arising, as they say, from alternate drowning and parching, will not fall short of two hundred millions of dollars The report further says, that upon soils properly drained and cultivated, fine crops were obtained, while on wet or undrained lands and fields neglected or half cultivated, a failure was imminent.

What an immense loss have we here recorded, as the result of but one season's culture! A sum so vast would in a very few years pay off our entire national debt, principal and interest; or if applied to the drainage and improvement of the soil, would soon place us beyond the reach of contingencies such as we have recorded.

To guard against losses of this nature in the future, is what we now most earnestly commend to our people; that they are entirely within our control, there cannot be a doubt. We look forward to a time, in the near future, when we shall, by our knowledge, our industry and our skill, place



MULAY SAW MILL.

ourselves above much of the contingencies and losses of crops that seem now to be so entirely beyond our control and will be able to calculate, with much certainty, upon a fair return for the labor bestowed upon them.

Among the objects of prominent interest in the Mechanical Department of the State Fair this season, was a mulay saw mill built by Chandler & Taylor, of Indianapolis, of which the cut on page 146 is a fair representation.

At an early period of the exhibition, there was a lively interest manifested in this mill, that continued unabated throughout the entire week. Many practical men saw at once that a new field for enterprise was here presented that was likely to result in the rapid developement of many sections of our State, that have heretofore been impeded in their improvements for the want of proper means of manufacturing the timber with which they were surrounded. The *advantages* claimed for this mill are not so much its capacity for extensive lumbering operations as for its ability to cut lumber expeditiously, considering the capital, the power and the number of hands employed. These are qualities that our community have for a long time been wanting, hence its first introduction attracted around it much of interest and it was generally looked upon as filling that want.

The power employed on this occasion was an ordinary ten-horse power threshing engine, and this is considered ample to drive it to a very excellent advantage. The force of men employed is usually three, though it is frequently run by two. The mill weighs about five thousand pounds and is built with reference to its being taken apart, so that it may be transported to any location desired and set up and put in operation with but a small amount of labor and loss of time.

The circular mills of our State that have heretofore been the principal ones in use, are well calculated to fill the sphere in extensive lumber operations, for which they are well adapted and generally used. But their success depends on a number of conditions that are not always available. They must have, in the first place, a large outlay for mill and fixtures; second, a large capital to carry the heavy amount of stock on hand; third, a large number of hands and teams to operate them; fourth, extensive arrangements with a large scope of timber country and a convenient railroad connection with a market. But it is apparent that these mills cannot be located so near to each other as to fill the wants of a large portion of the interior, nor can they ordinarily be located to advantage otherwise than either on our railroad thoroughfares or on navigable streams—hence it is that this mulay mill is specially adapted to fill a great want of our entire interior country, where the circular mill could not be profitably used.

There is throughout the country a large number of *portable threshing engines* that are now employed for perhaps three months in the year in their work of cleaning grain. Here, then, is a field of useful employment for them in the very time that the country most needs their services.

The capital and labor required to be added to the investment already made is so light, that we confidently look forward to a time in the near future when each neighborhood shall be supplied with mulay saw mills sufficient to manufacture lumber from the timber in its own vicinity, that will rapidly show its results for good in the improvements in the comfort and convenience of our dwellings, in the erection of larger and better barns and in the neat appearance of our fences, as well as in many other improvements that need not be referred to.

Stationary Engine not less than twenty-horse power, one entry.

E. T. Slaker & Co., Indianapolis, Indiana, premium, silver medal and	$50 00

Rotary Blower, one entry.

Greenleaf & Co., Indianapolis, Indiana, premium	Diploma

Ditching Machine, three entries.

Moon & Doan, Richmond, Indiana, premium..... Bronze Medal

Excavator, one entry.

B. Shesser, Sidney, Ohio, premium........Bronze Medal

Water Wheel, three entries.

Barnett, Herman & Co., Springfield, Ohio, premium.,..............................Diploma

Head-Block for Saw Mills. two entries.

E. T. Sinker & Co., Indianapolis, Indiana, premium, Bronze Medal

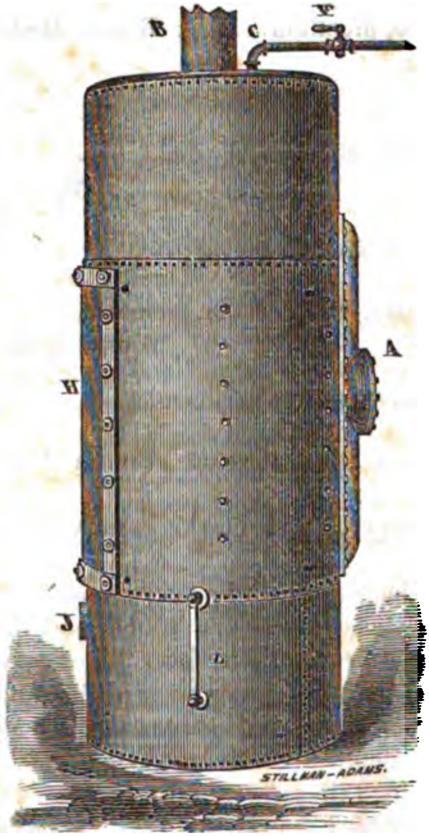
Lime Extractor and Water Heater, two entries.

Stillwell & Bierce, Dayton, Ohio, premium..Bronze Medal

STILWELL'S PATENT HEATER AND FILTER COMBINED.

This machine can no longer be called an experiment. It is now over five years since it was first tested, and the rapidity with which it has been adopted (over fifteen hundred being now in use) by all of the most scientific and practical engineers of the country, notwithstanding the almost insurmountable difficulties which had to be met in the way of prejudice, "hard times," etc., fully justifies us, we think, in making the above statement. With a desire to fully meet the wants of the age in this direction, they have made the subject of purifying feed-water for steam boilers a most careful study, and experience has proved beyond a doubt that the principles that are embodied in the Stilwell heater are correct; and. for support in this opinion they confidently refer to the thousands of practical men throughout the country who have been familiar with their heater since its first introduction.

Experiments by the most competent and scientific engineers have established the following facts, viz: Scale being a non-conductor of heat, the presence in a boiler of one-sixteenth of an inch is equal to a loss of about fifteen per cent. of the heat in fuel. The plates of a boiler never get hotter than the water, when it is in contact with them, whatever may be the outside temperature, and the water never gets hotter than some 330 degrees under a pressure of 100 pounds. Clean boiler plates would therefore last for years; but when coated with scale, and thus removed from direct contact with the water, they soon become so overheated as to deteriorate in quality and quantity. Explosions frequently occur by the cracking of the scale and allowing the water to come in sudden contact with the overheated plates. To extract these foreign substances, such as lime, magnesia, iron, etc., which form scale, from the water before it enters the boiler, is the object of this Patent Heater; and it does the work most thoroughly.

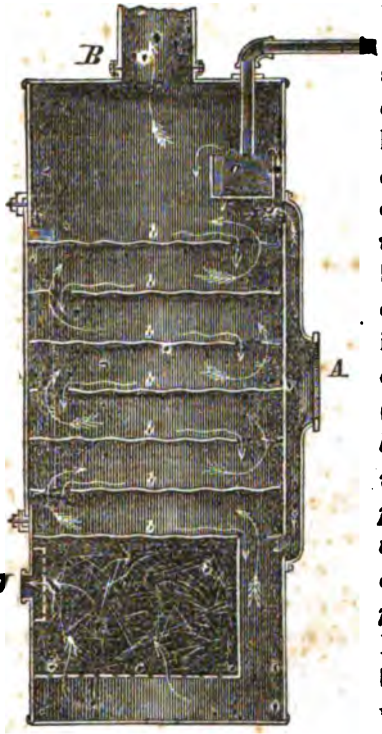


OUTSIDE VIEW

Description of Cuts.

A—Steam enters the heater, and is divided into two currents.
B—Steam escapes from the heater.
C—Cold water enters.
F—Cock with which to regulate the supply of cold water.
H—Door of heater.
J—Hot water leaves the heater.
L—Glass water-guage.
b, *b*, *b*—Removable shelves or depositing surfaces.
c—Filtering chamber.

1. This heater uses all the escape steam from the engine, bringing it into contact with thin sheets of falling water at *different elevations*, rendering *it impossible* for any water to pass through the Heater without being thoroughly heated; and the volume of steam used enables them to heat and purify a very large quantity of water. The lower current of steam *alone* is equal in heating capacity to the *entire heating capacity* of any other heater. In all other heaters which can be regarded in any sense as competitors of theirs, the heat (steam) is applied at the *bottom* of the heater, *just when the water is ready to pass to the pump, affording the water no opportunity, after being heated, to deposit the salts set free.* In this Heater a large body of steam meets the water as it *enters* the heater, flowing over the edges of the overflow cup in a thin sheet, dashes it into spray, sets free the salts held in solution, *when the work of depos-*



Section through center of Heater.

iting begins immediately, the heaviest deposit always being found on the top shelf, while the flowing water, as it passes from shelf to shelf, is constantly subjected to the ascending current of steam, until it passes into the filtering chamber beneath, having deposited upon the shelves all that portion of the salts held in solution that will crystalize.

2. The shelves of the Heater are constructed of cast-iron with corrugated surfaces, so as to give the largest possible superficial area; and are *all removable* through the door on the side of the Heater, (the packing of which adheres to the door, and not to the Heater, and will last a year,) thus affording ready access to every inch of the Heater, for cleaning the same; and our present arrangement of fastening the shelves precludes any possibility of their sticking fast. The advantages of this arrangement over a system of hand-holes, through which to scrape the shelves, or breaking connections and removing the top of the Heater to get at the inside, will be apparent to all. Experiments have clearly proved the fallacy of this opinion, and have demonstrated beyond a doubt that the best condition to insure a rapid and thorough deposit of the salts held in solution, is when the water is passed in a *thin sheet over highly-heated metallic surfaces, and not* when standing in pans or vessels.

3. Their system of *filtering* the water is the *only one* which effectually removes mud, sand, and all other impurities which will not crystalize and adhere to the shelves. As will be seen by referring to the sectional engraving, the water, after making the circuit of the shelves, passes behind the water-shed, directly to the bottom of the Heater, thence up through the perforated plate, upon which the filtering material rests, and on *up through* the filtering material to the discharge-pipe *J.* The great superiority of an *upward filter* over a downward or *side filter*, all who have had any experience in this direction will readily admit. All the particles of mud and sand, instead of being dragged by the *current of water through the filter*, as in downward or side filters, settle rapidly to the bottom of the Heater, from

whence they are drawn off or blown out through a waste-pipe for that purpose. In some cases, when the water used is exceedingly muddy, we attach to the bottom of the Heater a mud well, and *outside upward filters*, with which arrangement we are almost *perfectly* purifying Missouri River water; which is well known as the muddiest water in the country. This system of *upward filtering* either inside or outside the Heater, and also *any arrangement of filter* when used within, or forming a part of the same vessel in which the water is heated, and in connection with a series of heating or depositing surfaces, is clearly secured to us by two distinct patents.

To Woolen Manufacturers, and all others who need pure water for other purposes than their boilers, this invention is especially valuable, as the capacity of the Heater is so great that a judicious use of it will supply them *pure water for dyeing, scouring, etc.*

SECTION VII—WOOD WORKING MACHINERY.

Stave Machine, one entry.

King & Pinney, Indianapolis, Ind., premium.. Bronze Medal

Shingle Machine, two entries.

Cader, Newton & Co., Elizabethtown, Ind., premium .... Bronze Medal

Lath Machine, one entry.

Chas. Leonard, Indianapolis, Ind., premium. Bronze Medal

Wood bendiug Machine, two entries.

James Conner, Richmond, Ind., premium...... .... 5.00

Circular Frame for general use, two entries.

Chandler & Taylor, Indianapolis, Ind., premium.. Diploma

Tenoning Machine, one entry.

William Cob, Whitestown, Ind., premium..Bronze Medal

Sash Machine, one entry.

William H. Dungan, Greenwood, Marion county, Ind., premium..................Bronze Medal

Planing Machine, three entries.

Frank & Co., Buffalo, N. Y., premium......Silver Medal

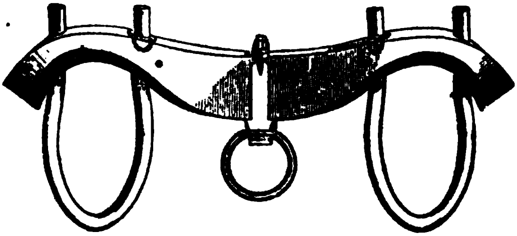
Moulding Machine, one entry.

M. Byrkit & Son., Indianapolis, Ind., premium............................Bronze Medal

W. B. Seward,
T. W. Miles,
John H. Warder,
Committee.

SECTION VIII—COMMON FARM IMPLEMENTS.

Ox Yoke, one entry.



OX YOKE.

J. George Stilz, Indianapolis, premium........... $1 00

Wooden Pump, three entries.

R. A. Durbon, Indianapolis, Ind., premium........ 5 00

Pump of any kind for common use, three entries.

Coffin, Deem & Co., Knightstown, Ind., premium... 5 00

Hand Water Elevator, three entries.

G. W. Dickerson, Terre Haute, Ind., premium...Diploma

Bee Hive, eight entries.

N. C. Mitchell, Indianapolis, Ind., premium......Diploma

Bob Sled, one entry.

Michner & Varns, Kokomo, Ind., premium........ $5 00

Power Cutting Box, five entries.

J. Hayard, Wilmington, Ohio, premium.........Diploma

Stump Puller, four entries.

Shilling & Banes, Piqua, Ohio, premium........Diploma

Hand Truck, one entry.

J. George Stilz, Indianapolis, Ind., premium.....Diploma

Wheelbarrow, two entries.

Indianapolis Wagon and Agricultural Works, Indianapolis, Ind., premium........................ 2 00

Wagon Jack, four entries.

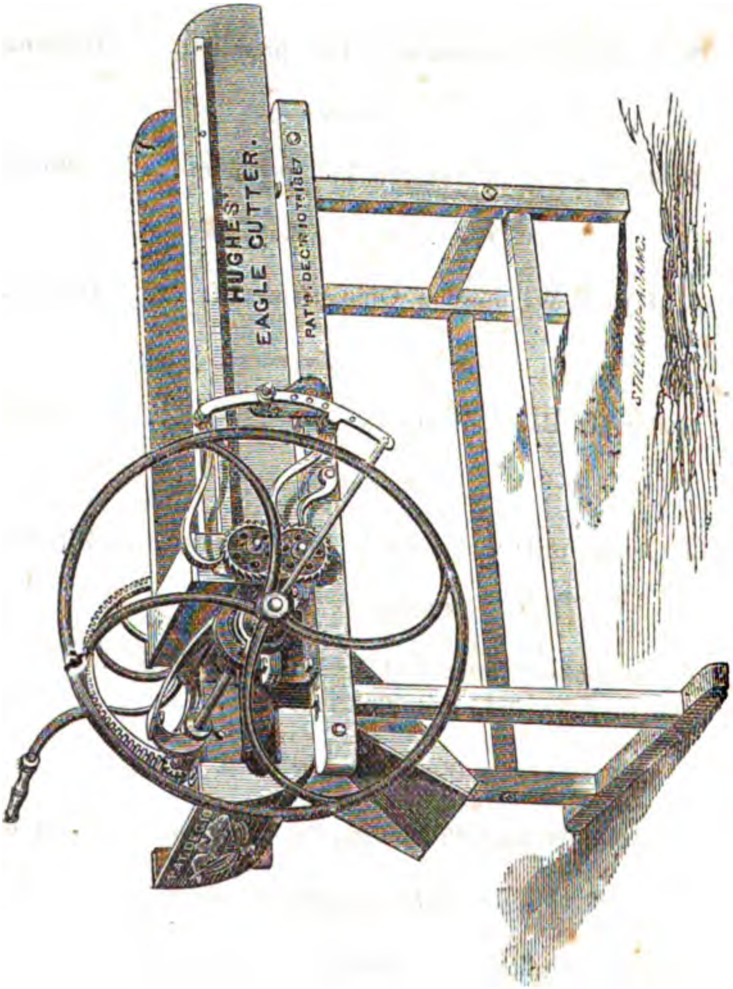
Benjamin Schopf, Pittsburgh, Pa., premium....... 1 00

Road Scraper, four entries.

Robert Hamilton, Franklin, Johnson county, Ind., premium 2 00

Hand Cutting Box, six entries.

R. L. Lukens, Indianapolis, Ind., premium.......Diploma



HUGHES' EAGLE FEED CUTTER. (See page 157.)

Six Axe Helves, one entry.

F. S. Newby, Clayton, Ind., premium........... $1 00

Hedge Trimmer, one entry.

J. George Stilz, Indianapolis, Ind., premium....... 2 00

W. O. Banks,
T. W. Tuttle,
R. C. Anderson,
Committee.

HUGHES' EAGLE FEED CUTTER.

(See cut, page 156.)

Manufactured by Pursel & Co., Lancaster, Ohio.

The accompanying cut represents the Eagle Cutter with the cap thrown forward to show its construction, which consists of a single revolving spiral knive, a heavy soft iron sheathing bar against which it cuts, and an eccentric, or stop-feed, driven by a simple gear and fly-wheel.

For the benefit of those desiring a perfect feed cutter, and who have not had an opportunity of seeing this one or testing its operations, the following description is given:

The Frame is made of the best seasoned wood, firmly joined together with strong iron joint bolts.

The Box is made of good seasoned material, and put together with heavy wood screws. It is also fastened to the frame with screws; there is not a nail in it.

The Gear, when used by hand, is a simple driving wheel, with crank attached, and pinion; driving the knife shaft with knife, cam and fly-wheel attached. When run by power a pully takes the place of the pinion.

The Knife, firmly attached to the shaft by strong iron arms, is a spiral shaped blade, made of the best English steel laid on iron, and is made sufficiently strong to cut the largest stalks of corn, including ears and cobs, without springing or breaking. Its cutting edge forms a diameter of eight inches, and, as it makes a cut at every revolution, it has a stroke of twenty-five inches. It is geared to make four cuts at every turn of the crank, or about two hundred and fifty cuts a minute; and, being assisted by the momentum of the fly-wheel, which has the same velocity, and having a shearing drawing cut from right to left, it does its work with an ease unknown to any other machine. It is easily removed for grinding.

The Sheathing Bar against which the knfe cuts is made of soft iron to prevent wearing the knife. It is fastened firmly, by strong iron bolts running through its ends, to iron sills, and can easily be moved to the knife as the knife wears away from it.

The Feed, as will be observed, is the most, simple, effective and convenient ever invented. It consists of a cam, with lever and pawls attached. The lower pawl pushes while the upper one pulls, thus running the feed rollers in opposite directions. The feed is moved forward when the knife is out of the way, where it remains until the knife passes through and cuts it, thus avoiding the friction common to continuous feeders. The length of the feed depends on the attachment to the lever. We have five different places of attachment, making as many lengths, and it may be changed to either in a moment. It cuts from one-quarter of an inch to two inches long, an arrangement foreign to all other machines.

The Feed Rollers are constructed of wood, covered with heavy sheet-iron, perforated from the inside by a slotting machine. The knife-like edges that are thus formed on them keep sharp and draw with very little weight, and never on the material to be cut. They can be easily taken out and repaired if so required. They are also so arranged that in feeding the material is bent downward, causing it to be more easily cut.

The Springs holding down the upper roller are made of seasoned ash wood, and fastened to the sides of the box by heavy wood screws. They can be conveniently removed if required. They have proved themselves superior to all others for this purpose.

As a straw cutter it has no superior. It is so arranged that not a single straw can go through it without being cut, and, as it is desirable to cut all the straws short (particularly for stuffing collars and packing eggs), and being a certain feeder, it will be found to do this class of work to perfection.

As a stalk cutter it has no competitor. The upper roller is so arranged that it will raise sufficient to allow the largest stalks, with the ears on, to pass to the knife, which, being strong, and having a long stroke, cuts them with ease any length desired. For preparing this kind of feed for mules, milch cows, fatting cattle or sheep, this machine is unequalled.

SECTION IX—WOODEN AND WILLOW WARE.

Collection Grain Measures, one entry.

J. George Stilz, Indianapolis, Ind., premium....... $2 00

Collection Baskets, one entry.

J. George Stilz, Indianapolis, Indiana, premium.................................. 2 00

Common Brooms, one entry.

J. W. Bradshaw, Indianapolis, Indiana, premium.................................. 2 00

Specimen Basket, willow, one entry.

Geo. G. Wallace, Indianapolis, Indiana, premium.................................. 2 00

Display Cooper Ware, three entries.

McKendry & Lovecraft, Indianapolis, Indiana, premium........................ 2 00

Collection Wooden Ware, one entry

S. A. Tendly, Newport, Indiana, premium.. Diploma

Panel Door, one entry.

Builders' and Manufacturers' Association, Indianapolis, Indiana, premium........... $5 00

Pair Inside Blinds, one entry.

Builders' and Manufacturers' Association, Indianapolis, Indiana, premium......... .. 5 00

Pair Outside Window Blinds, one entry.

Builders' and Manufacturers' Association, Indianapolis, Indiana, premium........... 5 00

Collection Worked House Builder's Materials, one entry.

Builders' and Manufacturers' Association, Indianapolis, Indiana, premium, Bronze Medal and..$10

W. D. BANKS,
T. W. TUTTLE,
R. C. ANDERSON,
Committee.

SECTION X—EDGE TOOLS, WORKED METALS, AND HARDWARE.

Collection Edge Tools, made in Indiana, one entry.

Ford, Austin & Co., New Albany, Indiana, premium................ .... Silver Medal

Assortment Cutlery, made in Indiana, one entry.

Henry Hunter, Richmond, Indiana, premium, Bronze Medal

Collection Saws, two entries.	
E. T. Sinker, Indianapolis, Indiana, premium	Silver Medal
Cross Cut Saw, three entries.	
E. T. Sinker, Indianapolis, Indiana, premium	Diploma
Smoothing Iron, three entries.	
E. Bliss, Indianapolis, Indiana, premium	$1 00
Cooking Stove, two entries.	
I. L. Frankem, Indianapolis, Indiana, premium	10 00
Parlor Stove, two entries.	
G. F. Adams & Co., Indianapolis, Indiana, premium	3 00
Collection Stoves, two entries.	
I. L. Frankem, Indianapolis, Indiana, premium, $10, and	Diploma
Iron Railing, one entry.	
B. F. Haugh & Co., Indianapolis, Indiana, premium	Diploma
Case, Faucets, and Steam Fitting, three entries.	
Eagle Brass Works, Indianapolis, Indiana, premium	Bronze Medal
Wrench, one entry.	
E. Over & Co., Indianapolis, Indiana, premium	1 00

Sash Supporter and Fastener, seven entries.

I. N. Cook, Canton, Ohio, premium	$1 00

Collection Japanned Hardware, one entry.

Union Novelty Works, Indianapolis, Indiana, premium........................	Diploma

Axe, one entry.

E. Over & Co., Indianapolis, Indiana, premium................................	1 00

Pair Horse Shoes, one entry.

C. B. Hukill, Lincoln, Logan county, Illinois, premium........................	1 00

Gate Latch and Fastening, two entries.

C. W. Rhodes, Indianapolis, Indiana, premium................................	Diploma

Collection Bird Cages, one entry.

Charles Mayer & Co., Indianapolis, Indiana, premium	Diploma

Iron Prison, one entry.

B. F. Haugh & Co., Indianapolis, Indiana, premium	Silver Medal

Here your Committee were dumbfounded at the inventive genius of the age, and found, upon inspection that this Iron Prison was a perfect man-holder, or trap, inside of which we did not care to be, and awarded the premium and departed.

Collection Reaper and Mower Knives, one entry.

Longblack & Allstetter, Hamilton, Ohio, premium .... Silver Medal

Collection Coppersmith's Ware, two entries.

William Langerkamp, Indianapolis, Indiana, premium .... Silver Medal

W. B. SEWARD,
G. W. MILES,
JNO. H. WARDER,
Committee.

SECTION XI— EVAPORATORS, SCALES, BELLS, ETC.

Evaporator and Apparatus for Making Syrup and Sugar, three entries.

Jacob Brothers, Columbus, Ohio, premium.. Silver Medal

Collection Counter and Platform Scales, one entry.

W. P. Gallup, Indianapolis, Indiana, premium.............................. Diploma

Cattle or Hay Scales, one entry.

W. P. Gallup, Indianapolis, Indiana, premium.............................. Diploma

Collection Bells, two entries.

R. L. Lukens, Indianapolis, Indiana, premium.............................. $5 00

Fruit Drying Apparatus, four entries.

J. K. Boswell, Indianapolis, Indiana, premium..............................Bronze Medal

Clothes Dryer and Iron Heater Combined, one entry.

J. K. Boswell, Indianapolis, Indiana, premium	$5 00

Room Heater, one entry.

J. K. Boswell, Indianapolis, Indiana, premium	Diploma

Apparatus for Cooking Food for Stock, one entry.

Farqhar & Doan, Richmond, Indiana, premium..	Diploma

A valuable invention, and one that should be used on every farm as an economizer of feed, especially to young or fattening stock.

Portable and Self-supporting Fence, six entries.

W. A. Schofield, Indianapolis, Ind., premium	Diploma

John W. Zigler,
W. N. Kyle,
Committee.

SECTION XII—LEATHER AND LEATHER MANUFACTURES.

Collection Leather, one entry

John Fishback, Indianapolis, Ind., premium......	$10 00

This is a very meritorious and superior collection, worthy of several such premiums as the one offered.

Double Carriage Harness, two entries.

Wiggins & Co., Richmond, Ind., premium........	20 00

Single Harness, one entry.

Wiggins & Co., Richmond, Ind., premium........	10 00

Double Harness for Common Use, one entry.

Wiggins & Co., Richmond, Ind., premium........	5 00

Man's Saddle, one entry.

Wiggins & Co., Richmond, Ind., premium ...... Diploma

Side Saddle, three entries.

Fraurer, Bieler & Co., Indianapolis, Ind., premium. Diploma

Riding Bridle, two entries.

Fraurer, Bieler & Co., Indianapolis, Ind., premium .. $2 00

Pair Boots, two entries.

Maurice & Spohn, Indianapolis, Ind., premium 2 00

H. F. Albershart exhibits meritorious work, and worthy of a diploma. (*See Rules and Reg., Art.* 12.—Sec'y.)

Collection Boots, Shoes, Gaiters, and Slippers, Made in Indiana, four entries.

J. W. Adams, Indianapolis, Ind., premium...... 10 00

H. F. Alberhart's collection is incomplete—not having any slippers.

Trunk, eight entries.

R. L. Shilling, Indianapolis, Ind., premium........ 5 00

These were all well adapted as comfortable traveling companions, and indispensable when one visits abroad. If some manufacturer in this class will get up a trunk and hand valise with an explosive corner, so arranged as to burst at every improper handling in our railway depots and wound those rough baggagemen, they will confer a lasting favor to the public, and insure to themselves a rich and well deserved reward.

Valise, three entries.

R. L. Shilling, Indianapolis, Ind., premium....... $5 00

Gentleman's Traveling Satchel, two entries.

R. L. Shilling, Indianapolis, Ind., premium....... 5 00

Collection Leather Belting Made in Indiana, one entry.

John Fishback, Indianapolis, Ind., premium.......	$10 00

Braided Rope Halter, three entries.

Fraurer, Bieler & Co., Indianapolis, Ind., premium..	1 00

Horse Collar, two entries.

Wiggins & Co., Richmond, Ind., premium..	Diploma

Your committee find all the articles exhibited in this class A No. 1, and we much regret that we had not more awards of merit to bestow.

ISAAC KEEN,
H. O. BATSOCK,
DAN. S. JORDAN,
Committee.

SECTION XIII—INDIANA MINERALS, BUILDING STONE, ETC.

Specimen Building Stone, four entries.

Wm. M. Franklin & Co., Spencer, Ind., premium..	$10 00

Specimen Marble, two entries.

E. T. Cox, Indianapolis, Ind., premium	10 00

A fine specimen, cream-colored marble; susceptible of a high polish, and very durable.

Specimen Lime, one entry.

E. T. Cox, Indianapolis, Ind., premium	3 00

Collection Fire Brick, one entry.

Brazil Fire Brick Works, Brazil, Ind., premium....	5 00

Fully equal to the best Eastern fire brick.

Specimen Indiana Coal, five entries.

M. W. Ingle, Indianapolis, Ind., premium.........	10 00

This is the block coal from Otter creek, Clay county, Indiana. The entries 1, 2, 3, and 4, made by E. T. Cox, are of the same quality.

Specimen Indiana Iron, three entries.

E. T. Cox, Indianapolis, Ind., premium diploma and. $10 00

Roofing and Repairing Material, one entry.

Chas. Leonard, Indianapolis, Ind., premium..... Diploma

Collection Drain Tile, six entries.

J. T. McCoy, McCord's, Decatur county, Indiana, premium 10 00

Entry number one, honorable mention. Exhibits very fine workmanship, but the committee reject it because it is not sufficiently porous to admit water.

[NOTE.—It is a fact well understood by those who have had most practical experience with drain tile, that when they are laid in the drain or ditch the water is expected to get in through the joints, for made as perfect as it may be, it *cannot*, nor is it desirable, that the pieces should fit perfectly. So that porous or not, it has so little to do with the quality of tile, used as it is, it cannot be made so close as to prevent the free entry of water for all usual drainage purposes.—SECRETARY.]

RULE.—To each specimen must be attached a statement of the original position and thickness of the stratum; and no premium will be awarded, unless the specimen has been taken from a workable and accessible stratum or well.

The specimen receiving the premium to be deposited in the State Geological Department and remain the property of the State.

[NOTE.—No statements as required by the foregoing rule have been filed. So, in strict accordance with the *rule*, if it was imperative, no premium should have been awarded. For a complete scientific and practical report on Indiana minerals, see report of Prof. E. T. Cox, State Geologist, published in this volume.—SECRETARY.]

Not signed by committee.

SECTION XIV—INDIANA IRON AND PAPER.

Specimen Pig Iron, one entry.

E. T. Cox, Indianapolis, Indiana, premium . Bronze Medal

Specimen Steel, one entry.

E. Over & Co., Indianapolis, Indiana ....

This is a lot of English steel, and your committee understand their instructions in this department to confine them to Indiana products. If not, this collection is worthy of a premium.—COMMITTEE.

[NOTE.—On application in writing, made to the Board, and from the facts above stated, the Board made a special award of a Bronze Medal.—SECRETARY.]

Collection Bar Iron, three entries.

Capital City Iron Works, Indianapolis, Indiana, premium.................................Silver Medal

This sample is of superior quality, made at home and from Indiana material. All the samples were creditable.

Collection Nuts, Bolts, &c., one entry.

E. Over & Co., Indianapolis, Indiana, premium... Silver Medal

Wrapping Paper, straw, one entry.

Field, Locke & Co., Indianapolis, Indiana, premium.................................. $3 00

Wrapping Paper, rags and straw, one entry.

Field, Locke & Co., Indianapolis, Indiana, premium.................................. 3 00

Wrapping Paper, wool and straw, one entry.

Field, Locke & Co., Indianapolis, Indiana, premium.................................. 3 00

Report not signed by committee.

SECTION XV—CARRIAGES, WAGONS AND FURNITURE.

Judge W. C. DANALDSON, Attending Member and Superintendent of Department.

Two-Seated Carriage, two entries.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium..$40 00

One-Seated Buggy, four entries.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium.. 25 00

One-Seated Open Buggy, one entry.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium.. 15 00

Two-Seated Spring Wagon, three entries.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium.. 15 00

Sulky, three entries.

T. S. Denny, Booneville, Warrick county, Indiana, premium.. 5 00

All the carriages in the list possess superior merit, on account of finish and general workmanship.

Set Carriage Wheels, two entries.

Osgood, Smith & Co., Indianapolis, Indiana, premium..Diploma

Carriage Coupling, two entries.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium.. 5 00

Two-Horse Wagon, three entries.

A. Finley, Bainbridge, Putnam county, Indiana, premium.................................. $20 00

Very durable, perfect in all its parts, with improved tongue and coupling.

Cart, one entry.

Daniel Gorman, Indianapolis, Indiana, premium... 5 00

One-Horse Sleigh, one entry.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium.................................. 3 00

A beautiful cutter, reminding us of our early yankee days. "Merrily, merrily jingle the bells, as over the snow we glide." A happy reminder of romping youth, drawing one's sled up hill to enjoy the unalloyed pleasure of riding down. Sleigh rides, apple parings, pumpkin pies and apple sauce have all disappeared for a home in Indiana, with bacon and corn-dodgers.

Two Horse Sleigh, one entry.

Shaw, Lippencott & Conner, Indianapolis, Indiana, premium.................................. 5 00

A superb Sleigh, one that in finish is good enough for a parlor ornament, and would do honor to a New England snow, but in its absence a "convenient thing to have in the house." Your premium of five dollars is well merited.

Street or Delivery Wagon, two entries.

Smith Christian, Indianapolis, Indiana, premium.. 5 00

Carriage Hubs, one entry.

Osgood, Smith & Co., Indianapolis, Indiana, premium.................................. 3 00

Collection Carriages, Buggies and Wagons, one entry.

Shaw, Lippencott & Connor, Indianapolis, Indiana, premium.................... ....$30 00

A premium doubly earned and in every way justly awarded.

Velocipede, two wheel, one entry.

T. C. Redding, Indianapolis, Indiana, premium.... 5 00

D. A. Fish,
Geo. W. Coen,
Jas. A. Curtis,
Committee.

SECTION XVI—FURNITURE.

Bureau, two entries.

Mitchel & Rammelsburg Manufacturing Co., Indianapolis, Indiana, premium.................. $5 00

Wardrobe, two entries.

Speigel, Thoms & Co., Indianapolis, Indiana, premium 5 00

Your Committee are very much in need of a good *wardrobe.*

Extension Table, two entries.

Mitchel & Co., Indianapolis, Indiana, premium....

A massive, strong table, with several legs, quite too *extensive* for the present high price of victuals.

Sofa, one entry.

Mitchel & Co., Indianapolis, Indiana, premium.... 5 00

Set Chairs, ten entries.

Mitchel & Co., Indianapolis, Indiana, premium.... $5 00

Book Case, two entries.

Mitchel & Co., Indianapolis, Indiana, premium... 5 00

An elegant walnut case, in which well bound books appear to good advantage. A necessary household appendage. Those most valuable to the country are self-made and carried on the shoulders.

Collection School House Furniture, three entries.

A. H. Andrews & Co., Chicago, Illinois, premium.. Diploma

This is a collection of School Seats and Desks of great merit, as compared with the old slab seats of your Committee's Day, minus desks, or backs, and so high our toes could not touch the floor. These may well be denominated by our children, "*Schools made easy*," and it is as it should be.

Mattress, one entry.

Speigel & Thoms, Indianapolis, Indiana, premium. Diploma

Bed Bottom, three entries.

R. Ward, Harrison county, Ohio, premium.... Diploma

Office Chairs, one entry.

Mitchel & Co., Indianapolis, Indiana, premium.... 3 00

Center Table, three entries.

Mitchel & Co., Indianapolis, Indiana, premium.... 5 00

Writing Desk, one entry.

Mitchel & Co., Indianapolis, Indiana, premium.... 3 00

A stranger to your Committee, but as it is a fine piece of furniture we cheerfully award the premium.

Writing Desk, one entry.

Mitchel & Co., Indianapolis, Ind., premium....... $3 00

Set Parlor Furniture, three entries.

Mitchel & Co., Indianapolis, Ind., premium....... 20 00

Collection Cabinet Ware, two entries.

Mitchel & Co., Indianapolis, Ind., premium.. Silver Medal

D. W. Fish,
Geo. N. Coen,
Jas. A. Curtis,
Committee.

SECTION XVII—MUSICAL INSTRUMENTS.

Rule.—Instruments to be operated during the Fair, and exhibited in Music Hall.

[Note.—For Grand and Upright Pianos, no entries.—Sec'y.]

Square Piano, eight entries.

Indianapolis Piano Manufacturing Company, Indianapolis, Ind., premium Silver Medal and......$10 00

Cottage Organ Without Pedal, three entries.

Benham Bros., Indianapolis, Ind., premium. Bronze Medal

Church Organ With Pedal, one entry.

Benham Bros., Indianapolis, Ind., premium.. Silver Medal

Piano Case Melodeon, two entries.

M. A. Stowell, Indianapolis, Ind., premium. Bronze Medal

Violin, one entry.

Benham Bros., Indianapolis, Ind., premium ..... Diploma

Guitar, one entry.

Benham Bros., Indianapolis, Ind., premium......Diploma

Collection Small Musical Instrumeuts, two entries.

A. G. Willard & Co., Indianapolis, Ind., premium..........................Silver Medal

S. P. Hathaway,
Mrs. Carlos Dickson,
A. T. Donahue,
Committee.

SECTION XVIII—FURS, WEARING APPAREL, &C.

Collection Furs, two entries.

E. A. Seaton, Indianapolis, Ind., premium, Diploma and.................................... $5 00

Chart for Cutting Garments, one entry.

L. Powell, Milroy, Ind., premium................ 1 00

None of the other articles upon which premiums were offered in this class competed for.

S. P. Hathaway,
A. T. Donahue,
Mrs. Carlos Dickson,
Committee.

SECTION XIX—SCIENTIFIC INSTRUMENTS.

Collection Surveyors' Instruments, one entry.

E. F. Steffins, Indianapolis, Ind., premium........ $5 00

Collection Spectacles, one entry.

L. W. Moses, Indianapolis, Ind., premium........ 5 00

Collection Surgical Instruments, two entries.

Browning & Sloan, Indianapolis, Ind., premium... 5 00

Embracing a great variety of instruments, and all of excellent workmanship.

Collection Artificial Legs and Arms, two entries.

Douglass Bly, M. D., Chicago, Ills., and Cincinnati, Ohio, premium............................Diploma

Splendidly finished, and in great variety. Ankle joint, ball and socket joint. Your committee are happy to say that we need none of these very ingenious and valuable appendages. Their adaptation for the purposes intended, and the ease with which they may be substituted by those who have lost limbs in the army, or otherwise, is truly surprising, and the genius displayed in their invention is a beneficent legacy to unfortunate humanity, that can not receive too much commendation from those even who have no use for them.

Case Silverware, one entry.

W. P. Bingham, Indianapolis, Ind., premium, Diploma and.................. ....$10 00

Report not signed by Committee.

SECTION XX—DOMESTIC MANUFACTURES OF LINEN, WOOLEN OR COTTON FABRICS, MADE BY HAND.

Ten Yards Rag Carpet, ten entries.

Mrs. Ann Cox, Indianapolis, Ind., premium....... $5 00

This was a large collection, embracing several fine pieces, and brought to mind younger days, when by needle, rags, sore fingers, and perseverance, we were able to make one rag carpet per annum; but, thanks to inventive genius and machinery, we are relieved from this old routine of house duty now.

Ten Yards Wool Carpet, six entries.

Mrs. George Anderson, Indianapolis, Ind., premium$10 00

Double Coverlet, Wool, one entry.

Mrs. Jane Hull, Indianapolis, Ind., premium...... 5 00

Double Coverlet, Cotton, two entries.

Miss Anna Cox, Indianapolis, Ind., premium...... 5 00

Wool Knit Stockings, five entries.

Mrs. E. W. Miller, Terre Haute, Ind., premium.... $1 00

Wool Socks, seven entries.

Mrs. M. Kaylor, Indianapolis, Ind., premium....... 1 00

Wool Knit Mittens, four entries.

Mrs. H. M. Noble, Indianapolis, Ind., premium.... 1 00

Woolen Comfort, one entry.

rs. S. B. Shults, Indianapolis, Ind., premium.... 3 00

Pound Woolen Yarn, one entry.

F. W. Funke, Indianapolis, Ind., premium..... .. 1 00

Foot Mat, four entries.

Miss Anna Dane, Indianapolis, Ind., premium..... 1 00

Ten Yards Jeans, one entry.

J. Bogart, Franklin, Johnson county, Ind, premium.. 5 00

Ten Yards Table Linen, five entries.

Miss Anna Cox, Indianapolis, Ind., premium...... 5 00

Ten Yards Plain Linen, two entries.

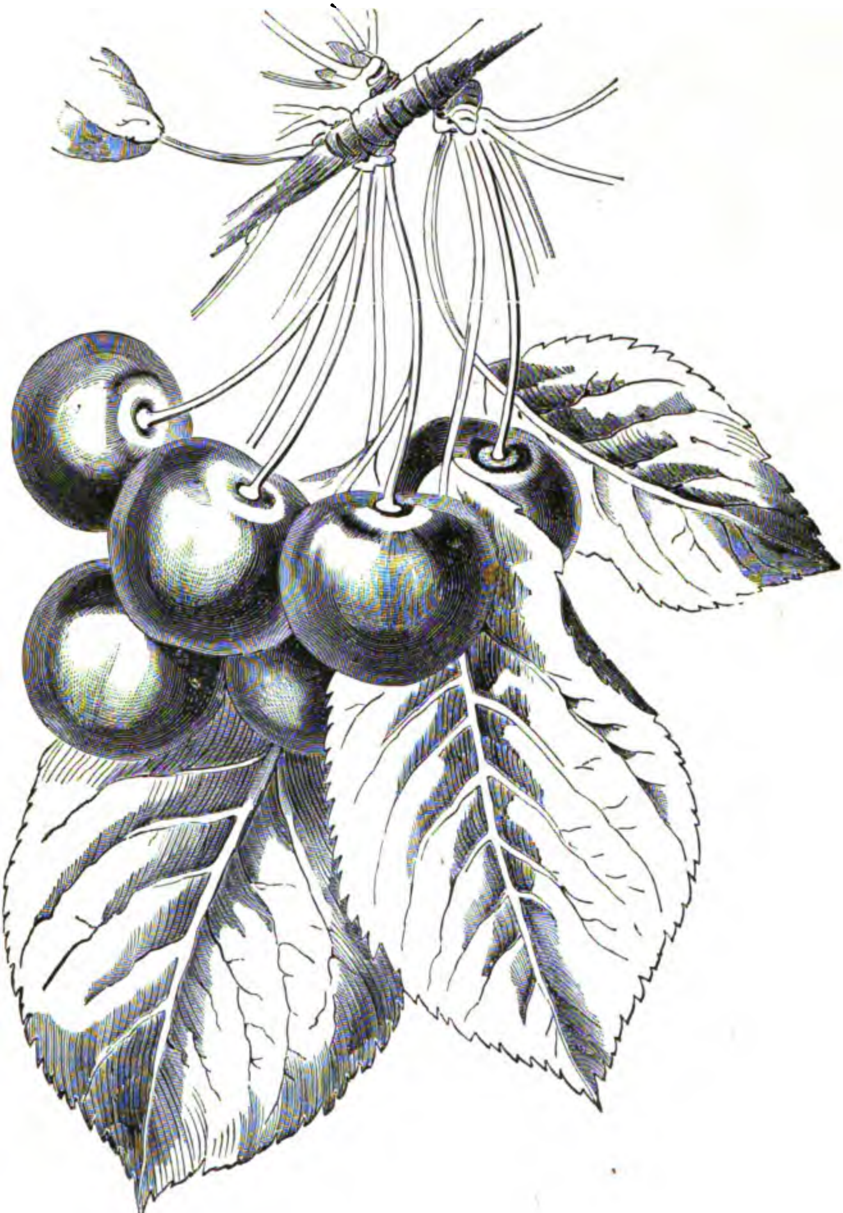
Mrs. Jane Hull, Indianapolis, Ind., premium....... 5 00

Flax Thread, two entries.

Mrs. George Anderson, Painesville, Ohio, premium. 2 00

Knit Cotton Socks, three entries.

Mrs. R. C. Scofield, Indianapolis, Ind., premium... 1 00



GOVERNOR WOOD CHERRY.

Knit Cotton Stockings, four entries.

Lizzie Boggott, Osborne, Green county, Ohio, premium...................................... $1 00

Ten Yards Plain Flannel, one entry.

Mrs. J. W. Ferree, Milroy, Ind., premium. 5 00

Ten Yards Plaid Flannel, two entries.

Mrs. J. W. Ferree, Milroy, Ind., premium......... 5 00

MRS. M. M. MILFORD, Attica, Ind.,
MRS. JAMES SAMPSON, New Harmony, Ind.,
MRS. W. C. DANALDSON, Montezuma, Ind.,
Committee.

SECTION XXI—DOMESTIC MANUFACTURE OF LINEN, WOOLEN, AND COTTON FABRICS MADE BY MACHINERY.

Ten Yards Satinet, one entry.

Seymour Woolen Mills, Seymour, Ind., premium.. $5 00

Ten Yards Fulled Cloth, one entry.

Lawrenceburg Woolen Mills, Lawrenceburg, Ind., premium 5 00

Ten Yards Cassimere, one entry.

Lawrenceburg Woolen Mills, Lawrenceburg, Ind., premium ....Silver Medal

Ten Yards Plaid Flannel, one entry.

Seymour Woolen Mills, Seymour, Ind., premium.. 5 00

Pair Blankets, one entry.

Seymour Woolen Mills, Seymour, Ind., premium.. 5 00

Ten Yards Plain Flannel, one entry.

Seymour Woolen Mills, Seymour, Ind., premium.. $5 00

Collection of Common Cotton and Woolen Fabrics, one entry.

Seymour Woolen Mills, Seymour, Ind., premium.. Silver Medal

Ten Yards Jeans, one entry.

Seymour Woolen Mills, Seymour, Ind., premium.. 5 00

Jeans Warp, one entry.

Indianapolis Cotton Manufacturing Company, Indianapolis, Ind., premium...................... 5 00

Satinet Warp, one entry.

Indianapolis Cotton Manufacturing Company, Indianapolis, Ind., premium...................... 5 00

MRS. JAMES SAMPSON,
MRS. W. C. DANALDSON,
MRS. M. M. MILFORD,
Committee.

NON-ENUMERATED.

MECHANICAL DEPARTMENT—239 ENTRIES.

RULE.—Articles for which no premiums are offered will be entered as "non-enumerated," and will be passed upon by a special committee, complimentary notices of them given and published, and such recommendation as they may be entitled to in their judgment. Such recommendation, however, will be subject to the approval of the State Board.

Entry No. 2.—T. D. Whitney & Co., Indianapolis, Indiana, dumping wagon. An excellent improvement on the old one; especially adapted to the purpose. We recommend a diploma.

Entry No. 8.—Kimbal, Aikman & Co., Indianapolis, Indian, combination beam for grain scales. Highly recommended by judges, and we recommend the award of a diploma.

Entry No. 9.—Westover & Vawter, Vernon, Indiana, planing machine duster. An A No. 1 invention; highly recommended by builders and also by your committee. Worthy honorable mention in a diploma.

Entry No. 11.—P. H. Many & Co., Lincoln, Illinois, combined grain and middling feeder, smutter and separator. An excellent invention; highly commended by millers and grain dealers. The smutter part of the machine is specially commended to the Indianapolis City Council and the lower house of Congress. We recommend a diploma.

Entry No. 13.—Union Novelty Works, Frink & Moore, Indianapolis, Indiana, street stop-cock boxes for gas or water. A practical, safe and valuable acquisition to gas and water companies; durable, not easily tampered with, and just the thing in its proper place.

Entry No. 14.—Union Novelty Works, Frink & Moore, shutter safety hinges. A valuable improvement over the old ones, and cannot be opened from without. We recommend a diploma.

Entry No. 18.—R. L. Lukens, Indianapolis, Indiana, grain register. A good thing for grain dealers. Diploma.

Entry No. 22.—A. D. Hereth, Indianapolis, Indiana, double breast-collars. Extra in workmanship and finish, and a great and humane relief to beasts that are bearers of burdens. Diploma.

Entry No. 24.—McKendry & Lovecraft, Indianapolis, Indiana, forty bunches machine staves. Perfect in all their parts, and ready for the hoops. Diploma.

Entry No. 27.—D. Lelewer & Brothers, Indianapolis, Indiana, sample furs, etc. Diploma.

Entry No. 30.—A. Ballweg, Indianapolis, Indiana, case of guns, made by himself, comprising a superior collection and all meritorious.

Entry No. 32.—H. P. Hood, Indianapolis, Indiana, model patterns. Very neatly finished. Diploma.

Entry No. 35.—Gall & Rush, Indianapolis, Indiana, house furnishing goods—or, in other words, a complete parlor on the Fair ground. Neat and well arranged, with first quality goods in their appropriate places.

Entry No. 36.—B. F. Hetherington & Co., Indianapolis, Indiana, collection small iron castings. Diploma.

Entry No. 37.—Wm. Earl, Nashua, N. Y., sheep shearing machine: a revolving cutter ingeniously arranged, and should come into general use. It is opposed to "cruelty to dumb beasts." Diploma.

Entry No. 38.—Wm. Earl, Indianapolis, Indiana, belt punch and lacer. A useful article.

Entry No. 40.—D. H. Goodell, Antrim, Hillsborough, New Hampshire. Diploma.

Same, peach parer; valuable addition to the old apple parer.

Entry No. 42.—E. Haugh & Co., Indianapolis, Indiana, door for prison, main entrance. A safety valve for convicts, for they can neither get in or out, except by permission of the door-keeper.

Entry No. 44.—E. Haugh & Co., Indianapolis, Indiana, cast iron hat rack. Ornamental and well finished.

Entry No. 45.—E. Haugh & Co., Indianapolis, Indiana, wrought iron gate. A beautiful design. We recommend a diploma.

Entry No. 46.—E. Haugh & Co., Indianapolis, Indiana, wrought iron fence for public grounds. Very strong and durable, with an improved ground fastening.

Entry No. 47.—E. Haugh & Co., Indianapolis, Indiana, cast iron post. Ornamental and substantial.

Entry No. 48.—E. T. Cox, Indianapolis, Indiana, fire clay. A valuable addition to the rapidly developing geological development of the State.

Entry No. 54.—W. H. Hershman, Louisville, Kentucky, Danbert's portable water heater. Diploma.

Entry No. 59.—Miller & Edwards, Indianapolis, Indiana, spoke driver. A labor-saving invention; a good article.

Entry Nos. 62 *and* 63.—Lawrenceburg Woolen Mills, Lawrenceburg, Indiana. These fabrics are a credit to the manufacturers and the State. They are not inferior to the French article. They are a fine collection of fancy plaid cassimere and silk-mixed cassimere. Diploma.

Entry No. 64.—W. H. Roll, Indianapolis, Indiana, net signs to be suspended over the street. A new and ingenious mode of advertising.

Entry No. 66.—John Johnson, Indianapolis, Indiana, a collection of ancient copper coins; quite interesting.

Entry No. 65.—J. K. Snyder, Lafayette, Indiana, bolt cutter. Complete; cutting bolts rapidly. Recommended highly by your committee. Diploma.

Entry No. 67.—E. C. Atkins, Indianapolis, Indiana, saw gummers. Useful and practical.

Entry No. 68.—Jas. R. Robinson, Lafayette, Indiana, cotton and hay press. A good, strong invention.

Entry No. 69.—D. Fellows, Columbus, Ohio, specimen of a new and quick process of tanning, thoroughly prepared.

[NOTE.—The committee do not say what is to be tanned, leather or boys; we suppose the former.—SECRETARY.]

Entry No. 72.—Thomas Madden, Indianapolis, Indiana, samples of manufactured tobacco.

While your committee cannot recommend its use, we must recognize its great commercial value to the State, thousands of acres being annually grown in southern Indiana, which is said to yield a paying profit to the grower. The samples shown are very fine and of excellent quality.

Entry No. 73.—D. J. Miller, Indianapolis, Indiana, flood fence. A good improvement, requiring no posts.

Entry No. 76.—Allen J. Johnson, Indianapolis, Indiana, orthopoedical instruments. A superior collection, highly commended. We recommend a diploma.

Entry No. 77.—Edwin May, Indianapolis, Indiana, fire and rat proof roofing. A valuable invention. We recommend a bronze medal.

[NOTE.—The medal has since been awarded as recommended. See special article.—SECRETARY.]

Entry No. 78.—R. A. Kelly, Hope, Bartholomew county, Indiana, clod fenders.

Your committee find several entries of these machines, and without any practical knowledge of their value; yet we judge by the number shown, that they are valuable to the cultivator of the soil. The entries are as follows:

Entry No. 125.—J. W. Tull, Zionsville, Indiana.

Entry No. 90.—L. M. Dodridge, New Mount Pleasant, Indiana.

Entry No. 136.—J. C. Curryer, Thorntown, Indiana.

Entry No. 177.—Miller & Rice, Economy, Wayne county, Indiana.

Entry No. 210.—A. Moore, Thorntown, Indiana.

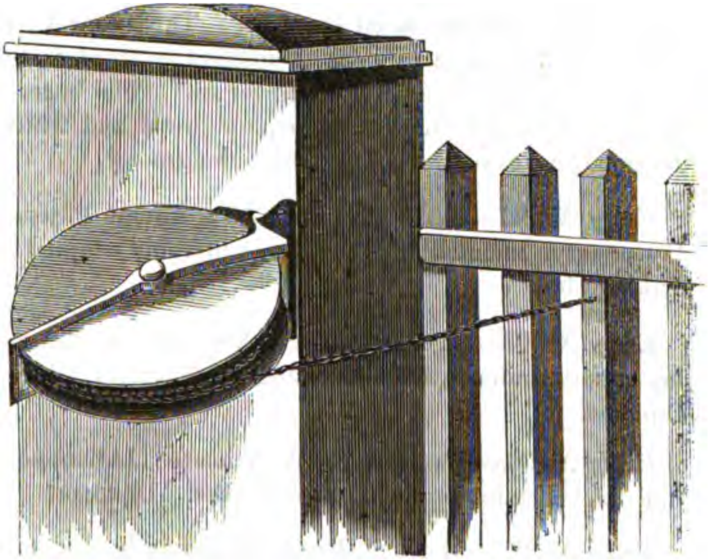
Entry No. 212.—J. Geo. Stilz, Indianapolis, Indiana.

Entry No. 215.—P. C. Clark, Crawfordsville, Indiana.

Your committee think entry No. 177 is the best and entry No. 136 second best, but make no recommendation.

Entry No. 80.—A. J. Vaneman, Richmond, Indiana, collection wooden hames. Extra fine and durable. We recommend a diploma.

Entry No. 81.—Lyman Martin, Indianapolis, Indiana, gate pulley. A new and valuable patent; makes a gate or door to which it is attached a sure self-shutter; reliable, strong and durable; a sure guard against city gate-opening cows; should come into general use. We recommend a Diploma.



GATE PULLEY. (Invented by Lyman Martin.)

Entry No. 85.—John Patterson, Indianapolis, Indiana, General Press. We were acquainted with many Generals during the late unpleasantness, especially General Draft, who pressed us into the army; but this press appears as strong as the best of them, and we recommend a Diploma.

Entry No. 87.—Indiana Cement Pipe Company, Indianapolis, Indiana, collection of drain, sewerage, and water pipes. A good collection of valuable and useful material—home-made. Diploma.

Entry No. 88.—J. H. Adams, Indianapolis, Indiana, improved fruit picker. Desirable for gathering specimens, or a hat-full of fruit at a time, but to pick by the bushel not practicable.

Entry No. 91.—L. M. Dodridge, New Mount Pleasant, Jay county, Indiana, weed gatherer. This, your Committee believe to be a valuabie acquisition, ***in its place***, but not near so valuable as "weed preventor." The latter is not used by our farmers who frequent town and whittle dry goods boxes on the corners, or at the grocery.

Entry No. 92.—T. M. C. Lutes New Mount Pleasant, Jay county, Indiana, file mould. Admirably adapted for making files.

Entry No. 93.—T. M. C. Lutes, New Mount Pleasant, Jay county, Indiana, self-supporting plank for blind drains. Diploma.

Entry No 96.—Maxwell, Fry & Thurston, Indianapolis, Indiana, collection buggy boxes or bodies. Diploma.

Entry No. 97.—Maxwell, Fry & Thurston, Indianapolis, Indiana, blacksmith's drill. A valuable acquisition.

Entry No. 98.—Globe Nail Company, Boston, Massachusetts, collection horse shoe nails. Fearing these might be spurious your Committee made a thorough examination, but found no wood in their component parts, Hub wooden nutmegs to the contrary notwithstanding. We recommend a Diploma.

Entries Nos. 99, 100, 101, 102, and 103.—Holland Frisby, Louisville, Kentucky, collection inlaid work, imitation tile, imitation stone, imitation wood. Diploma.

Entry No. 105.—Jas. M. Cross, Lebanon, Boone county, Indiana, water tank regulator. Diploma.

Entry No. 108.—Ragan & Jones, Indianapolis, Indiana, cider and wine press. Highly recommended by your Committee on account of economy in power, durability, and perfect adaptation to the purposes intended. Diploma.

Entry No. 114.—A. H. Andrews, Chicago, Illinois, school apparatus. A very creditable exhibition, improvement in a desirable direction, and should be fostered. Diploma.

Entry No. 116.—J. A. Kirkpatrick, Evansville, Indiana. blacksmith's hand drill. Diploma.

Entry No. 117.—Michel & Kessinger, Elizabeth, Indiana, improved flour bolt. Worthy of notice.

Entry No. 121.—H. A. Crossley & Co., Cleveland, Ohio, stave jointer. Diploma.

Entry No. 126.—American Leg and Arm Co., Indianapolis, Indiana, manikin. A good specimen, and valuable to physicians.

Entry No. 128.—C. S. Dunham, Indianapolis, Indiana, dumping wagon. Diploma.

Entry No. 132.—William Hinman, Elkhart, Indiana, milk and provision safe. An excellent article to have in the house. Your Committee recommend a Diploma.

Entry No. 133.—William H. Johnson, Clayton, Hendricks county, Indiana, door arrester. Recommended.

Entry No. 137.—Currier & Young, Thorntown, Indiana, double catch latch. A good improvement. Recommended.

Entry No. 139.—B. Coddington, Lafayette, Indiana, improved plan for roofing. An excellent article for constructing tin roofing. Highly rcommended. Diploma.

Entry No. 140.—W. P. Elliott, Richmond, Indiana, catchall. Never caught a thief.

Entry No. 141.—W. B. Jacobs, Indianapolis, Indiana, fire extinguisher. A very valuable invention, and does all that is claimed for it. Diploma.

Entry No. 141½.—F. M. Stone, Brookville, Indiana, clothes dryer. An original, practical invention. Favorably considered.

Entry No. 158.—B. H. Jones, Marion, Indiana, " O. G." cornice and evestrough. Diploma.

Entry No. 160.—M. B. Malott, Richmond, Indiana, car coupling. Diploma.

Entry No. 161.—S. S. Cotton, Richmond, Indiana, tree boxes, a useful and economical contrivance for the protection of street trees against the depredations of our neighbors' unruly cows. Diploma.

Entry No. 164.—D. M. Mitchel, Indianapolis, Indiana, collection mill feed. No dyspeptics on the committee feed not considered.

Entry No. 174.—S. A. Patterson, Indianapolis, Indiana, axle box. A valuable improvement and should come into general use.

Entry No. 181.—Todd & Carmichael, Indianapolis, Indiana, collection books and stationery. Diploma.

Entry No. 182.—B. F. Haugh & Co., Indianapolis, Indiana, wrought iron cell door. A valuable improvement on jail and cell doors, deserving the attention of officers of the law. Haugh & Co. must think ill of their associates, or these unpleasant jails, prisons, and iron doors would not be so largely exhibited by them.

Entry No. 185.—E. T. Sinker & Co., Indianapolis, Indiana, weather-board sawing machine. Splendidly adapted to its business of making weather-boarding—One side thiek, the other thin, like one's friends when in adversity.

Entry No. 191.—Slutter & Erwin, Warsaw, Indiana, shifting buggy top. Practicable and valuable.

Entry No. 200.—F. Clymer, Gallion, Ohio, method of protecting peach trees.

We are at a loss to know in what regard he proposes to protect them. If against the peach tree porer, the best and only safe protection is to carefully remove the grubs with a sharp knife and kill them. If against our frequent hard winters, which destroy the trees, plant a dozen or so at home and your large orchards in favored localities, where the trees never have been injured. Of these sites, there is an abundance, both in northern and southern Indiana.

Entry No. 201.—W. R. Cummings, McCutcheonville, Indiana, combined harrow and cultivator. Diploma.

Entry No. 203.—J. C. Green & Co., Indianapolis, Indiana, manufactured tobacco. Fair assortment and good quality.

Entry No. 204.—P. M. Culliny, Indianapolis, Indiana, imported dry goods. A superior collection. We recommend diploma.

They were paid for in our most precious metal, which should be kept at home, while we should patronize home manufactures.

Entry No. 218.—V. H. Lyon, Plainfield, Indiana, fruit gatherer. Diploma.

This is greatly superceded by step-ladder and nimble fingers.

Entry No. 221.—Wm. H. Hitchen, Peru, Indiana, hay rake and loader. Diploma.

Entry No. 223.—Evert Everts, Indianapolis, Indiana, vegetable cutter. Highly recommended. Excellent for krout cutting. Diploma.

Entry No. 226.—C. Hicks, Louisville, Kentucky, combined carpet sill, weather strip and block. An excellent contrivance, well adapted to stopping cracks. Diploma.

Entry No. 227.—Greenleaf & Co., Indianapolis, Indiana, double acting steam pump. Admirably adapted to machinery and said to be the best in use.

Entry No. 229.—Greenleaf & Co., Indianapolis, Indiana, engine governor. Diploma.

SECTION XXIII.—NON-ENUMERATED.

Entry No. 1.—E. Over & Co., Indianapolis, Indiana, collection of hammers. Extra good quality.

Entries Nos. 2, 3 *and* 4.—E. Over & Co., Indianapolis, Indiana, wagon and seat springs, parallel vice and screw tops. Diploma.

Entry No. 5.—N. Kimball, by S. Beard, Indianapolis, Indiana, road scraper. Superior workmanship and strengh. Diploma.

Entry No. 8.—Indiana Cotton Mills, Indianapolis, Indiana, heavy sheeting. A very creditable article. Diploma.

Entry No. 9.—Colman Hick, Louisville, Kentucky, sash lock. Good invention; entirely new.

To the State Board of Agriculture:

Your committee have worked without interruption until the explosion, after which it was impossible to pursue our labors farther.

So far as we have gone (and we are nearly through), we have performed your arduous requests, without "fear, affection, favor or reward," and ask in future to be relieved from the duties devolving upon your committee in class "non-enumerated."

It is a duty requiring the greatest general knowledge of the mechanic arts and sciences, specially as most of the articles in this class are new inventions, appertaining to all branches of industry—most of them, no doubt, indeed, your committee believe them, to be valuable, and as they make a very instructive collection of the results of the inventive genius of our day, such exhibitions should receive their full share of your fostering care and attention.

To this end your committee suggest that all articles in this class be exhibited hereafter in a separate apartment or building, erected for the purpose, where full justice can be done exhibitors and the labors of your committee be very much lessened. Respectfully yours,

JAMES A. EAKIN,
J. H. VAJEN,
JOHN S. BURNS,
Committee.

AGRICULTURAL DEPARTMENT.

JOHN McCREA, Attending Member and Superintendent.

SECTION I—VEGETABLES.

Six Heads Cabbage, three entries.

George W. Idner, Cumberland, Indiana, premium. $2 00

Three Cauliflowers, one entry.

Mrs. E. Francis, Indianapolis, Indiana, premium.. 2 00

Six Vegetable Eggs, one entry.

George W. Idner, Indianapolis, Indiana, premium. 2 00

Six Cucumbers, four entries.

A. Freeman, Franklin, Indiana, premium.......... 1 00

Peck White Beans, eight entries.

John Hough, Augusta, Marion county, Indiana, premium	$2 00

Two Quarts Lima Beans, seven entries.

J. George Stilz, Indianapolis, Indiana, premium	1 00

Half Peck Lima Beans, in Pod, seven entries.

J. George Stilz, Indianapolis, Indiana, premium	2 00

Half Peck Garden Peas, Dry, two entries.

A. Freeman, Franklin, Indiana, premium	2 00

Half Peck Field Peas, two entries.

J. George Stilz, Indianapolis, Indiana, premium	2 00

Half Peck Peppers, for Pickling, five entries.

H. H. & C. J. Fletcher, Spencer, Indiana, premium	2 00

Peck Tomatoes, nine entries.

John Marvel, Royalton, Boone county, Indiana, premium	3 00

Collectian Tomatoes, five entries.

Moses Crawford, Clayton, Indiana, premium	5 00

Half-dozen Ears Green Sweet Corn, six entries.

A. Freeman, Franklin, Johnson county, Indiana, premium	2 00

Half Peck Dry Sweet Corn, six entries.

James F. Coburn, Indianapolis, Indiana, premium	2 00

Three Squashes, any kind, ten entries.

H. H. & C. J. Fletcher, Spencer, Owen county, Indiana, premium...	$2 00

Three Yankee Pumpkins, three entries.

H. H. & C. J. Fletcher, Spencer, Owen county, Indiana, premium....	2 00

Three Sweet Pumpkins, five entries.

S. K. Fletcher, Indianapolis, Indiana, premium....	2 00

Half-dozen Watermelons, one entry.

H. H. & C. J. Fletcher, Spencer, Owen county, Indiana, premium....	2 00

These were fine specimens, of a superior variety, weighing thirty-five and forty pounds each.

Half-dozen Nutmeg Melons, three entries.

S. K. Fletcher, Indianapolis, Indiana, premium....	2 00

Collection Vegetables, one Exhibitor, three entries.

A. Freeman, Franklin, Indiana, first premium.....	15 00
Jessey Tansey, Moorsville, Indiana, second premium....	5 00

Your committee find a superior collection of well grown vegetables, and regret that we had so few premiums to award in this class.

M. L. Snodgrass,
C. A. McClead,
F. M. Polk,
Committee.

SECTION II—ROOT CROPS.

Half Bushel Turnips, three entries.

J. George Stilz, Indianapolis, Indiana, premium.. $2 00

Dozen Parsnips, six entries.

Moses Crawford, Clayton, Hendricks county, Indiana, premium............ .... 2 00

Dozen Radishes, three entries.

A. Freeman, Franklin, Indiana, premium......... 2 00

Dozen Carrots, three entries.

J. George Stilz, Indianapolis, Indiana, premium.. 2 00

Dozen Roots Salsify, one entry.

J. George Stilz, Indianapolis, Indiana, premium.. 2 00

Dozen Horse Radishes, one entry.

Moses Crawford, Clayton, Ind., premium......... 2 00

Half Dozen Red Beets, six entries.

A. J. Pope, Indianapolis, Ind., premium........... 2 00

Half Dozen Turnip Beets, ten entries.

James Mustard, Broad Ripple, Ind., premium 2 00

Half Dozen Sugar Beets, one entry.

Y. Tomlinson, Indianapolis, Ind., premium 2 00

Half Peck Red Onions, four entries.

Weinberger & Ragan, Indianapolis, Ind., premium. 2 00

Half Peck Yellow Onions, three entries.

Weinberger & Ragan, Indianapolis, Ind., premium. 2 00

Half Peck White Onions, two entries.

Weinberger & Ragan, Indianapolis, Ind., premium. $2 00

The exhibition in this class was profuse, and of the best quality.

M. L. Snodgrass,
C. A. McClead,
J. A. Polk,
Committee.

SECTION III—POTATOES.

Peck Neshannocks, five entries.

A. Dawson, Castleton, Ind., premium............ $3 00

Peck White Peach-Blow, eleven entries.

J. C. Luch, Indianapolis, Ind., premium.......... 3 00

Peck Early Rose, eleven entries.

H. L. Edmonson, Bloomington, Ind., premium.... 3 00

Peck Prince Albert, four entries.

A. Freeman, Franklin, Ind., premium............ 3 00

Peck Early Goodrich, seven entries.

R. M. Ragan, Fillmore, Ind., premium............ 3 00

Peck Early Harrison, four entries.

Geo. W. Idner, Cumberland, Ind., premium....... 3 00

Peck Pink-Eye, two entries.

A. Freeman, Franklin, Ind., premium........... 3 00

Peck Shaker Russett, five entries.

B. North, North's Landing, Ohio county, Ind., premium.................................... 3 00

Half Bushel, any Variety, sixteen entries.

Tho Wyatt, Indianapolis, Ind., premium........ 5 00

Half Bushel Sweet Potatoes, twelve entries.

Z. White, Lawrence, Ind., premium	$3 00

Ten Varieties Irish, One Peck Each, three entries.

Weinberger & Ragan, Indianapolis, Ind., premium	10 00

Your committee find the present exhibition of potatoes the best we have ever witnessed in any State, and only regret that we cannot bestow upon them more pecuniary honors. Your committee thought it would not do to desert an old friend, that has always proved true, like the "Shaker Russett."*

M. L. SNODGRASS,
C. L. McCLEAD,
JNO. A. POLK,
Committee.

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*NOTE.—So we infer that the committee awarded the premium for the best single variety in a collection of sixteen distinct varieties to the Shaker Russett, though they do not exactly say so. Still, if the reputation of the committee as judges of potatoes is worth anything, they should have given to the public the result of their examinations and experience with potatoes, and named the varieties considered best by them, as a matter of valuable information to the whole community. As the matter now stands, the committee have given us no information touching the cultivation of this most valuable of esculents, nor do they in the face of this fine display of some twenty distinct varieties tell us which variety is the best; but they do say "it would not do to desert an old friend, the Shaker Russett." Had the committee no other "friends" in this long catalogue? Did they see the Peach Blow, or Early Rose?—SEC'Y.

SECTION IV—GRAIN AND SEEDS.

Half Bushel Yellow Corn in the Ear, eighteen entries.

Joseph Crow, Greencastle, Putnam county, Ind., first premium	$10 00
Granville Wilson, Conn's Creek, Shelby county, Ind., second premium	5 00

Half Bushel White Corn in the Ear, twenty-nine entries.

J. Smock, Southport, Ind., first premium	10 00
D. J. Miller, Indianapolis, Ind., second premium	5 00

Half Bushel Corn, any Color, nineteen entries.

Joseph Crow, Greencastle, Ind., first premium.....	$10 00
Joseph Crow, Greencastle, Ind., second premium..	5 00

Half Bushel Hominy Corn, four entries.

J. C. Smock, Southport, Ind., premium....	5 00

Half Bushel White Wheat, fifteen entries.

A. Freeman, Franklin, Ind., first premium........	10 00
M. T. Carnahan, New Harmony, Ind., 2nd premium.	5 00

CORN SHELLER. (Exhibited by J. George Stilz.

Half Bushel Red Wheat, eighteen entries.

George Anderson, Painsville, Lake county, Ohio, first premium........	10 00
D. Fendlay, Augusta, Ind., second premium.	5 00

Half Bushel Spring Wheat, one entry,

George Anderson, Painsville, Lake county, O., premium	10 00

Half bushel Rye, two entries.

J. Geo. Stilz, Indianapolis, Indiana, premium.....	5 00

Half bushel Oats, nine entries.

Wm. Cook, Connersville, Indiana, premium....... $5 00

Half bushel Buckwheat, two entries.

W. T. Dawson, Castleton, Indiana, premium...... 5 00

Half bushel Barley, five entries.

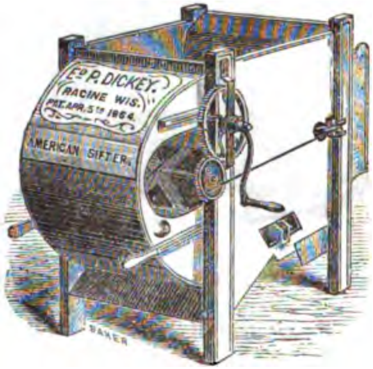
E. J. Howland, Indianapolis, Indiana, premium.... 5 00

Half bushel Flax Seed, three entries.

Geo. Anderson, Painesville, Ohio, premium....... 5 00

Half bushel Millet Seed, one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium..... 5 00


Eᴰ P. DICKEY.
RACINE WIS.
PAT. APR. 5th 1864.
AMERICAN SIFTER.
BAKER

FANNING MILL. (Exhibited by J. George Stils.)

Half bushel Hemp Seed, one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium..... 5 00

Half bushel Timothy Seed, four entries.

Geo. E. Wallace, Indianapolis, Indiana, premium.. 5 00

Half bushel Orchard Grass Seed, one entry.

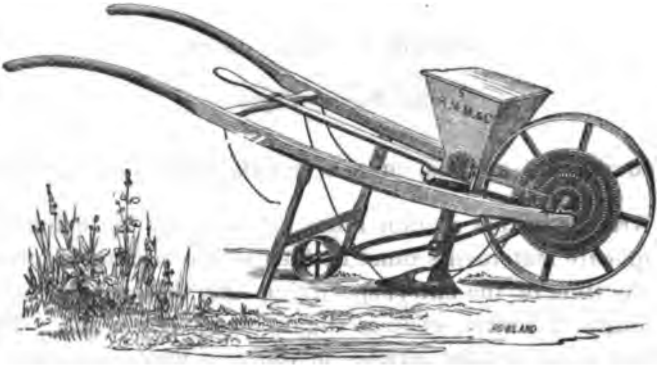
J. Geo. Stilz, Indianapolis, Indiana, premium..... 5 00

Half bushel Kentucky Blue Grass Seed, one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium. ... $5 00

Half bushel English Blue Grass Seed, one entry.

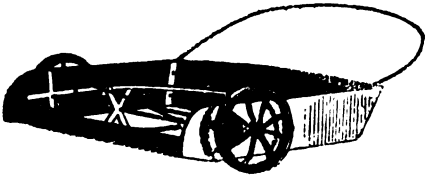
J. Geo. Stilz, Indianapolis, Indiana, premium..... 5 00



GRAIN DRILL. (Exhibited by J. George Stils.)

Half Bushel Red Top Grass Seed, one entry.

J. Geo. Stilz, Indianapolis, Indiana, premium..... 5 00



CLOVER SEED GATHERER. (Exhibited by J. George Stilz.)

Half bushel Red Clover Seed, two entries.

J. Geo. Stilz, Indianapolis, Indiana, premium..... 10 00

Sample ten pounds Broom Corn, four entries.

A. Freeman, Franklin, Indiana, premium......... 5 00

The exhibition of wheat, corn and seeds of all kinds has been the best your committee have ever seen, and the competition in the leading articles close and spirited, doing great credit to all the exhibitors.

M. L. SNODGRASS,
C. A. MCCLEAD,
F. M. POLK,
Committee.

SECTION V—FIELD CROPS.

(See January Report.)

SECTION VI—BUTTER, CHEESE, SUGAR, HONEY, BREAD, ETC.

Articles in this section must be made by the exhibitor. Duplicate statements must be filed in the secretary's office at the time of the entry, specifying fully the mode of manufacture of butter, cheese, sugar, bread, cakes, &c. The judges must test the articles in different ways and make a full report of the result of their survey.

Five pounds Butter made in June, five entries.

Mrs. M. J. Hough, Augusta Station, Indiana, first premium	$10 00
Mary Ann Boord, Stone Bluff, Indiana, second premium	5 00

Five pounds Butter made in September, five entries.

L. Dawson, Castleton, Indiana, first premium	10 00
Mrs. O. Johnson, Indianapolis, Indiana. second premium	5 00

Cheese, ten pounds or over, two entries.

Mrs. C. C. McVey, Cumberland, Indiana, first premium	10 00
Mary Bowman, New Winchester, Hendricks county, Indiana, second premium	5 00

Five pounds Maple Sugar, one entry.

Mrs. Andrew Wallace, Indianapolis, Indiana, premium	$2 00

Half Gallon Maple Molasses, two entries.

H. C. Gullifer, Augusta, Indiana, premium	2 00

Loaf White Bread, Milk or Salt Rising, seven entries.

Miss Sue Elliott, Indianapolis, Indiana, first premium	3 00
Miss Sue Crouther, Indianapolis, Indiana, second premium	2 00

Loaf Wheat Bread, Yeast rising, eighteen entries.

James F. Coburn, Indianapolis, Indiana, premium	3 00

Loaf Corn Bread, seven entries.

Lida E. Swift, Indianapolis, Indiana, premium	2 00

Sample Cake, home made, eight entries.

Miss M. C. Akin, Indianapolis, Indiana, premium	2 00

Collection of Cake, home made, one Exhibitor, five entries.

Miss Sue Crouther, Indianapolis, Indiana, first premium	10 00
Miss M. C. Akin, Indianapolis, Indiana, second preminm	5 00

Collection of Bread, home made, one Exhibitor, seven entries.

Miss Sue Crouther, Indianapolis, Indiana, first premium	10 00
Lida E. Swift, Indianapolis, Indiana, second premium	5 00

Collection Confectionery, one entry.	
Daggett & Co., Indianapolis, Indiana, premium....	$5 00
Sample Catsup, five entries.	
James F. Coburn, Indianapolis, Indiana, premium.	2 00
Sample Sorgho or Imphe Sugar, one entry.	
A. S. Folger & Brothers, Marietta, Rush county, Indiana, premium..............................	10 00
Sample Sorgho or Imphe Molasses, four entries.	
A. S. Folger & Brother, Marietta, Rush county, Indiana, premium..............................	5 00
Barrel White Wheat Flour, four entries.	
Neidhamer & Walton, Buena Vista, Indiana, premium, diploma and..........................	10 00
Barrel Red Wheat Flour, three entries.	
Henry D. Carlisle, Indianapolis, Indiana, premium, diploma and..............................	5 00
Sack Corn Meal, two entries.	
Henry D. Carlisle, Indianapolis, Indiana, premium.	3 00
Sample Hominy, one entry.	
Hosford & Tilford, Edinburg, Indiana, premium....	3 00
Sample Gritts, one entry.	
Hosford & Tilford, Edinburg, Indiana, premium....	3 00

JOHN A. THOMPSON, Edinburg, Ind.,
A. E. SUTHERLAND, Laporte, Ind.,
ELYA A. COX, Indianapolis, Ind.,
Committee.

[NOTE.—By reference to the special rate governing this section, it will be seen that duplicate statements were required in certain cases. We have not been able to find them, neither have the committee done themselves justice in the foregoing section—SECRETARY.]

HORTICULTURAL DEPARTMENT.

JOHN C. SHOEMAKER, **Acting Member and Superintendent.**

SECTION VIII—FRUIT—AMATEURS' LIST.

Rules.—The Awarding Committee will report a list o the varieties in each collection, to which they award premiums. All fruits must be grown by the exhibitor, and correctly labeled, (four of each variety,) accompanied by a list of the same for each entry. No collection can compete for more than one premium. No premium shall be awarded to inferior specimens or collections, it being the object not to encourage the exhibition of inferior sorts, having reference to the excellence and value of varieties only.

Nurserymen will not be allowed to compete in this section.

Twenty-five Varieties of Apples, eight entries.

Hon. John C. Shoemaker, Cannelton, Perry county, Indiana, premium............................$15 00

The following is the list:

Jonathan,
Summer Queen,
Roxbury Russet,
Northern Spy,
Green Newtown Pippin,
Rawles' Janet,
Baldwin,
Vandevere Pippin,
Cooper,
Yellow Belleflower,
Rambo,
Moore's Sweeting,
Fall Wine,
Broadwell,
Smith's Cider,
Wine Sap,
Campfield,
White Pippin,
Pryor's Red,
Ben Davis, or N. Y. Pippin,
English Golden Russet,
Rome Beauty,
Fallenwalder,
Lady's Blush,
Buckingham.

*[NOTE.—In justice to the other exhibitors and as a matter of horticultural information, the other seven lists in competition should also be published, but space will not allow; besides, it is a matter that properly belongs to the State Horticultural Society.

We understand the practice in Indiana to have been this, and it was first adopted at the suggestion of General Joseph Orr, of Laporte, I. D. G. Nelson, of Allen, and W. H. Loomis, of St. Joseph, in 1855, to-wit: that lists of varieties shown for premiums should be furnished by exhibitors to awarding committees in each class, and the *first requisite in making the award was* the judgment of the exhibitor in selecting valuable sorts; 2d, the correctness of his nomenclature; 3d, the excellence of the specimens shown.

These lists were carefully prepared, specimens thoroughly examined and awards made accordingly. The effect of this mode of procedure was, in fact, recommending the varieties so named to the attention of planters, and was so understood.

The writer hereof well remembers that it was no unusual incident at our first State Fairs to find the same variety, in the same collection, presented by one exhibitor under from one to five different names; but, fortunately, under the auspices of the Board of Agriculture and more recently under the special care and attention of the State Horticultural Society, it is the *exception*, and not the rule, to find a single variety incorrectly named, even in large collections. By thus fostering horticulture, this important branch of husbandry has become a matter of State pride, a source of great revenue, saying nothing of its many home comforts; so that a vocation, the tendency of which is to render our homes more pleasant and attractive, the cultivation of the soil more lucrative and at the same time (for this is the main point) so condusive to good health and longevity, should receive, and is *justly entitled to*, *none but first considerations*.—SECRETARY.

Twenty varieties of Apples, seven entries.

P. & .C A. Howland, Indianapolis, Indiana, premium..$10 00

The following is the list:

Hoops,
Baldwin,
King,
Rawles' Janet,
Esopus Spitzenburg,
Rambo,
Vandavere Pippin,
Tulpahocken,
Northern Spy,
Roxberry Russet,
Connet's Sweet,
French Sweet,

President,
Maiden's Blush,
Fall Pippin,
White Pippin,
Newtown Pippin,
Bellflour,
Talman's Sweet,
Jersey Sweet.

Twelve varieties Apples, twelve entries.

Hon. John C. Shoemaker, Cannelton, Perry county, Indiana, premium.............. .... $8 00

The following is the list:

Summer Queen,
Buckingham,
Jonathan,
Prior's Red,
Yellow Bellflour,
Rome Beauty,
Hays' Wine,
Ben. Davis,
Rambo,
Wine Sap,
Smith's Cider,
Roxberry Russet.

Six varieties Apples, twelve entries.

Charles D. Mason, Waverly, Marion county, Ind... 4 00

The following is the list:

Ben. Davis,
Baldwin,
Maiden's Blush,
White Pippin,
Rawles' Janet,
Green Sweet..

Fifteen varieties of Winter Apples, eight entries.

P. & C. A. Howland, Indianapolis, Indiana, premium.................................. 10 00

The following is the list:

Hoops,
Baldwin,
Newtown Pippin,
Monmouth Pippin,
Roxberry Russet,
Egyptian Russet,
King,
Tulpahocken,

Rawles' Janet,
Esopus Spitzenburg,
Northern Spy,
White Pippin,
Rome Beauty,
Prior's Red,
Red Sweet Pippin.

Five varieties Fall Apples, ten entries.

P. & C. A. Howland, Indianapolis, Indiana, premium............ .... $5 00

The following is the list:

Hoops,
Roxberry Russet,
Newtown Pippin,
Maiden's Blush,
Baldwin,
White Pippin.

PEARS.

Fifteen varieties ripening in succession, seven entries.

P. & C. A. Howland, Indianapolis, Indiana, premium.. 15 00

The following is the list:

Louise Bonne D' Jersey,
Seckel,
Beurre Diell,
Dix,
Beurre Bosc.
Vicar of Winkfield,
Glout Morceau,
Duches D' Angouleme,
Belle Lucrative,
Swan's Orange,
Urbanist,
Sieuelle,
Beurre D' Aremburg,
Winter Nelis,
Beurre D' Anjou.

Ten varieties Autumn Pears, six entries.

Charles Lowder, Plainfield, Hendricks county, Ind., premium.. 10 00

The following is the list:

White Doyenne,
Buffum,
George the Fourth,
Beurre Superfine,

Belle Lucrative,
Bartlett,
Seckel,
Louise Bonne D' Jersey,
Beurre D' Anjou,
Duches D' Angouleme.

Five varieties Winter Pears, four entries.

Mrs. Andy Wallace, Indianapolis, Ind., premium.. $5 00

The following is the list:

Passa Colmar,
Easter Beurre,
Vicar of Winkfield,
Lawrence,
Glout Morceau,

PEACHES.

Five Varieties Peaches, four entries.

J. F. Wiley, Memphis, Clarke county, Ind., premium 5 00

NOTE.—Where the list of varieties is not given, as in this case, it will be understood as lost, and therefore not in my possession.—SEC'Y.

Three Varieties Peaches, four entries.

J. F. Wiley, Memphis, Clarke county, Ind., premium 3 00

Single Variety Peach, eight entries.

Mrs. Andrew Wallace, Indianapolis, Ind., premium 2 00

GRAPES.

Five Varieties, six entries.

Henry Mankedick, Indianapolis, Ind., premium.... 5 00

Three Varieties, five entries.

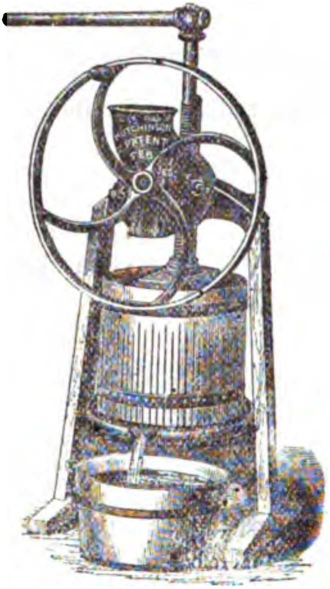
J. W. Ragan, Fillmore, Putnam co., Ind., premium.. 3 00

The following is the list:

Concord,
Delaware,
Clinton.

Five Clusters Grapes, any Kind, eight entries.

John Shellibarger, Indianapolis, Ind., premium..... $5 00



WINE PRESS.

Collection, six entries.

J. W. Ragan, Fillmore, Putnam county, Ind., premium, diploma and.............................. 10 00

The following is the list:

Concord,
Clinton,
Maxatawney,
Venango,
Taylor's White,
Isabella.
Catawba,
Delaware,
Northern Muscadine,
Rogers' No. 15.
York Maderia,

QUINCES.

Five entries.

A Freeman, Franklin, Johnson co., Ind., premium.. 5 00

Jos. Gilbert,
C. Fletcher,
S. W. Pearson,
Committee.

SECTION IX—PROFESSIONAL OR NURSERYMEN'S LIST.

Rule.—Requisites same as amateurs.

APPLES.

Twenty-Five Varieties, three entries.

DeGroff, Nelson & Co., Ft. Wayne, Ind., premium diploma and.................... ....$15 00

The following is the list:

Hawley,
Kiswick Codlin,
Trenton Early,
Rambo,
Mother,
Ben Davis,
Wagner,
White Pippin,
Smith's Cider,
Baldwin,
Fall Pippin,
Clyde Beauty,
Beauty of Kent,
King of T. County,
Jersey Black,
Tolman's Sweet,
Yellow Belleflower,
Lowell,
Maiden's Blush,
Northern Spy,
Peck's Pleasant,
Ramsdell's Red Sweet,
Red Canada,
Twenty Ounce,
Alexander,
Fallenwalder.

Twenty Varieties, two entries.

DeGroff, Nelson & Co., Ft. Wayne, Ind., premium, diploma and.............................. 10 00

The following is the list:

Hawley,
Kiswick Codlin,
Wagner,
Smith's Cider,
Fallenwalder,
King of T. County,
Maiden's Blush,
Twenty Ounce,
Westfield Seek-no-further,
Red Canada,
Trenton Early,
Rambo,
Ben Davis,
Baldwin,
Tolman's Sweet,
Northern Spy,
Lowell,
Ramsdell's Sweet,
Rhode Island Greening,
Peck's Pleasant.

Twelve Varieties, three entries.

DeGroff, Nelson & Co., Ft. Wayne, Ind., premium, diploma and.................................... $8 00

The following is the list:

Hawley,
Wagner,
Smith's Cider,
Maiden's Blush,
Kiswick Codlin,
Peck's Pleasant,
Trenton Early,
Ben Davis,
Twenty Ounce,
Tolman's Sweet,
Northern Spy,
Jersey Black,

Six Varieties, three entries.

S. W. Pearson, Plainfield, Ind., premium, diploma and.. 4 00

The following is the list:

White Pippin,
Smith's Cider,
Rawles' Janet,
Fallenwalder,
Jersey Black,
Rambo.

Fifteen Varieties Winter, two entries.

George W. Merritt, Smootsdale, Hendricks county, Ind., premium, diploma and.................... 10 00

The following is the list:

Pryor's Red,
Rhode Island Greening,
Vandevere Pippin,
Golden Russet,
Tulpahocking,
White Winter Pearmain,
Roxbury Russet,
Red Sweet Pippin,
Jersey Black,
Smith's Cider,
Baldwin,
Newtown Pippin,
Rawles' Janet,
Northern Spy,
American Pippin.

Five Varieties Fall, two entries.

George W. Merritt, Smootsdale, Hendricks county, Ind., premium, diploma and.................... $5 00

The following is the list:

Fall Wine (Hays),
Maiden's Blush,
Fall Pippin,
Rambo,
Green Sweet.

PEARS.

Fifteen Varieties in Succcession, threee entries.

Weinberger & Ragan, Indianapolis, Ind., premium, diploma and 10 00

The following is the list:

Flemish Beauty,
Beurre Bosc,
Shelden,
Seckel,
Howell,
Onondaga,
Beurre de Anjou,
Beurre Easter,
Beurre Clargeau,
Beurre Diell,
Urbanist,
Belle Lucrative,
Beurre Superfine,
Vicar of Winkfield,
Lawrence.

Ten Varieties Autumn, five entries.

William Patrick, Terre Haute, Indiana, premium, diploma and................................. 10 00

Four Varieties Winter, four entries.

Weinberger & Ragan, Indianapolis, Indiana, premium, diploma and.......................... 5 00

The following is the list:

Beurre de Alancon,
Vicar of Winkfield,
Lawrence,
Easter Beurre.

GRAPES.

Collection, two entries.

Weinberger & Ragan, Indianapolis, Indiana, premium, diploma and	$10 00

Grown on second bottom, sandy loam, Southern exposure; trained on trellis of laths seven feet high; ground thoroughly prepared and manured before planting; since, has been cultivated shallow with hoe, care being taken to allow no weeds to grow. Most varieties have roted badly this season.

The following is the list:

Israella,
Rogers, No. 19,
Pauline,
Lyman,
Concord,
Langworths, No. 6,
Iona,
Bates,
Cuyhoga,
Taylor's Bullet,
Delaware,
Clinton,
Allen's White Hybrid,
Isabella,
Union Village,
Venango,
Northern Muscadine.

Five Varieties, two entries.

S. W. Pearson, Plainfield, Indiana, premium, diploma and	$5 00

The following is the list:

Delaware,
Isabella,
Concord,
Catawba,
Dorr.

Three Varieties, two entries.

J. B. Ward, Guilford, Dearbon county, Indiana, premium, diploma and	3 00

The following is the list:

Concord,
Delaware,
Hartford Prolific.

Single Variety, five entries.

William Brown, Stockwell, Indiana, premium, diploma and $2 00

Concord. (Everybody's grape, it flourishes even on grass feed.)

QUINCES.

One Dozen, one entry.

Weinberger & Ragan, Indianapolis, Indiana, premium, diploma and........................... $2 00

WM. A. RAGAN,
J. W. FURNACE,
JOHN T. FRANCIS,
Committee.

[NOTE.—To us it seems strange that the committee could not find anything specially commendatory in the foregoing section; the best exhibition of fruits ever made in the State. All the collections A, No. 1, comprising thirty-eight entries and only fourteen awards, thus leaving twenty-four of their horticultural friends out in the cold, without one word of condolence or explanation, other than as the lists receiving premiums explain themselves. They seem rather to have divided the thing in some cases, and not confined themselves strictly to the letter of the law. However, pomologists won't fight among themselves, except in matters of nomenclature, and we have no disposition to growl about them, but wish them all speed, for the best interests of the country demand their every prosperity and success.—SECRETARY.]

SECTION X—THE STAR (*) LIST.

This will be a highly interesting feature of the exhibition to all genuine pomologists and those of *educated* taste, as well as to those who wish to become posted in regard to the most profitable fruit to be grown for market, especially the apple, which is destined soon to become one of the staple articles of commerce in Indiana. Persons wishing to compete for these premiums, who are not members of the State Horticultural Society, and who, consequently, have no copy of the transactions to guide them, as well as others wishing to be informed of the *pomological status* of our State, can obtain a copy and become members of the society by sending one dollar to I. D. G. Nelson, President, at Fort Wayne; Seth W. Pearson, Recording Secretary, at Plainfield, or T. A. Bland, Corresponding Secretary, at Indianapolis. Exhibitors in this class will be required to confine their lists to such varieties as have received the commendation of the State Horticultural Society. No fruit can be exhibited for mere show, under the penalty of the exhibitor being ruled out; the object being to test the progress of *pomological science* in our State, under the auspices of the Indiana State Agricultural Society—therefore, the awards will be made purely on the intrinsic merits of the fruit, as defined by and published in the transactions of that society.

Best Five Varieties Winter Apples most Profitable for Commercial Purposes, in Northern Indiana, one entry.

DeGroff, Nelson & Co., Fort Wayne, Indiana, premium $5 00

The following is the list:

Wagner,
Baldwin,
Jersey Black,
Ben Davis,
Smith's Cider.

Best Five Fall and Ten Winter Varieties for Family Use, and for Market, in Northern Indiana, one entry.

DeGroff, Nelson & Co., Fort Wayne, Indiana, premium 15 00

The following is the list:

Trenton Early,
Lowell,
Rambo,
Northern Spy,
Maiden's Blush,
Twenty Ounce,
Red Canada,
Baldwin,

Talman's Sweet,
Wagner,
Baldwin,
Jersey Black,
Fallawater,
Ben Davis,
Smith's Cider.

Best Five Varieties Winter Apples most Profitable for Commercial Purposes, in Central Indiana, four entries.

Charles Lowder, Plainfield, Indiana, premium......	$5 00

The following is the list:

Rambo,
White Pippin,
Fallawater,
Smith's Cider,
Jersey Black.

Best Five Fall and Ten Winter Varieties Apples for Family Use, and for Market, in Central Indiana, two entries.

Jesse White, Plainfield, Indiana, premium........	15 00

The following is the list:

Fall Pippin,
Maiden's Blush,
Fall Seek-no-further,
White Pippin,
Rome Beauty,
Baldwin,
Smith's Cider,
Rawles' Janet,
Rambo,
Fall Wine,
Fallawater,
Jersey Black,
Pickard's Reserve,
Esopus Spitzenberg,
Pryor's Red.

[NOTE.—The above collection received the premium over the following, as shown by William Patrick, of Terra Haute, Indiana, the first having twenty-three stars on the star list, and the latter twenty-six stars. See Star List, published elsewhere.—SECRETARY.]

Benoni,
Primate,
Famuse,
Fallawater,
Ben Davis,
Smith's Cider,
Rawles' Janet,
Moore's Sweet,
Maiden's Blush,
Rambo,
Baldwin,
White Pippin,
Rome Beauty,
Wagner,
Wine Sap.

Best Five Varieties Winter Apples, most Profitable for Commercial Purposes, in Southern Indiana, one entry.

Hon. John C. Shoemaker, Cannelton, Indiana, premium $5 00

The following is the list:

Ben Davis,
Smith's Cider,
Rome Beauty,
Wine Sap,
Rawles' Janet.

[NOTE.—It will be observed that Ben Davis is in both the Northern and Southern list, and Smith's Cider in all three of them, for their *intrinsic value*, no doubt.—SECRETARY.]

Best Five Fall and Ten Winter Varieties for Family Use, and Market, in Southern Indiana, one entry.

Hon. John C. Shoemaker, Cannelton, Indiana, premium 15 00

The following is the list:

Buckingham,
Yellow Belleflower,
Maiden's Blush,
Rawles' Janet,
Ben Davis,
Smith's Cider,
Pryor's Red,
White Pippin,
Rambo,
Fall Pippin,
Northern Spy,
Wine Sap,
Rome Beauty,
Jonathan,
Moore's Sweeting.

[NOTE.—Five of the above are in the same list for Northern Indiana, *to wit.:* Maiden's Blush, Ben Davis, Smith's Cider, Northern Spy, and Rambo. Eight of them are in the list for Central Indiana, as follows, *to wit.:* Fall Pippin, Rambo, Rome Beauty, Maiden's Blush, Rawles' Janet, Smith's Cider, Pryor's Red, and White Pippin. Thus it appears that the *intelligent practical* fruit growers of Southern, Central, and Northern Indiana, all three sections, agree in recommending Rambo, Maiden's Blush, and Smith's Cider, and the degree of unanimity shown in reference to several other varieties is no less valuable to the whole State. It clearly shows: first, that these apple men know what they are about, and second, that *blood*, as in stock growing, *will* also *tell* in apple growing.—SECRETARY.]

Best display of Apples for the State at large, three entries.

De Groff, Nelson & Co., Fort Wayne, Indiana, premium.................................$20 00

The following is the list:

American Golden Russet,
American Summer Pearmain,
Autumn Swaar,
English Golden Russet,
Falling Water,
Jersey Black,
Jersey Sweet,
Ladies' Sweet,
Late Strawberry,
London Sweet,
Lowell,
Peck's Pleasant,
Ramsdel's Sweet,
Rawles' Janet,
Esopus Spitzenburg,
Talman's Sweet,
Trenton Early,
Twenty Ounce,
Westfield's Seek-no-further
Duches of Oldenburg,
Baldwin,
Bellmont,
Ben. Davis,
Evening Party,
Famuse,
Keswick Codlin,
King T. Co.
Melon (Norton's).
Maiden's Blush,
Mother,
Northern Spy,
Red Canada,
Rhode Island Greening,
Smith's Cider,
Swaar.
Wagner,
White Pippin,
Wine Sap,
Fall Pippin.

The following list, by John C. Shoemaker, Cannelton, Indiana, in competition with the above:

Ben. Davis,
Moore's Sweeting,
Pryor's Red,
Fall Pippin,
Wine Sap,
Northern Spy,
Rome Beauty,
Domine,
Smith's Cider,
Wine Sap,
Eve Apple,
Rambo,
Rawles' Janet,
Buckingham,
Maiden's Blush,
Hoop,

Baldwin,
Esopus Spitzenburg,
Green Sweet,
Gilpin,
Golden Russet,
English Golden Russet,
Nickajack,
Ladies' Blush,
Rhode Island Greening,
Summer Queen,
Pottinger,
Roxberry Russet,
Golden Russet,
Fallawater,
Yellow Bellflour,
Bailey's Sweet,
Aunt Hannah,
Lady Finger.
Seedling Janet,
Green Newtown Pippin,
Jonathan,
Cooper,
Hays' Wine,
White Pippin.

Best display of Pears for the State at large, two entries.

Weinberger & Ragan, Indianapolis, Indiana, premium....................................$15 00

The following is the list:

Belle Lucrative,
Beurre D' Anjou,
Doyenne White,
Duches D' Angouleme,
Flemish Beauty,
Vicar of Winkfield,
Beurre Diell,
Glout Morceau,
Howell,
Onondaga,
Seckel,
Sheldon,
Louise Bonne D' Jersey.

Best display of Grapes for the State at large, one entry.

Henry Mankedick, Indianapolis, Indiana, premium, 10 00

The following is the list:

Concord,
Isabella,
Clinton,
Delaware,
Dorr,
Hartford Prolific,
Creveling,
Diana,
Union Village,
Ontario,

Taylor's White,
Minor's Seedling,
Oporto,
Iona,
Blood's Black,
Early Northern Muscadine,
Lyman,
Dracut Amber,
Louisa,
Logan,
Catawba.

FAIR GROUND, Sept. 30, 1869.

We, the committee on examination of the articles entered in this class, do certify to the foregoing awards as our best judgment.

C. FLETCHER,
JOSEPH GILBERT,
S. W. PEARSON,
Committee.

NOTE.—I deem it to be of great importance to assist as much as possible our horticultural friends of the State Society, and as a matter of valuable information here insert their so-called Star (*) List of fruits. This list is the result of eight years of hard labor on the part of that society, and is the essence of all the information attained by its practical working members by many years of personal experience.

To farmers in general, and all new beginners about to plant trees or embark in fruit growing as a business, an opportunity is here presented to save many years labor, and much money, by adopting the recommendations of this valuable society. They present in tabular form and in few words the correct name of the variety, its class, color, season, size, and the sections of the State where they have been grown, and the estimation placed upon them by competent judges.

If other classes of cultivators would organize as the apple men have, and reduce the growing of grain, vegetables and stock to a like or proper system, great good, and no small increase of revenue, would be the result. The field for thorough, practical advancement is certainly as broad in grain growing and stock raising as it can be in horticulture. The advantage thus gained is derived from actual practice, and it should be made an intelligent practice—for after all, in many cases, the net result of growing any given crop is but the result of experiment. The same practice succeeds with one, and utterly fails with his neighbor. There is a reason somewhere, and this reason is what we greatly need. So far as theories are concerned, we have an abundance, derived mostly from the writings of doctors, professors, and gentlemen of leisure, whose fields yield such great crops "without labor," whose cattle are fattened so nobly "without food." Farmers, without farms! What we most need is the reality of good cultivation and well conducted experiments. There are so many records made in the public prints giving pretended facts that are so extravagantly successful, and described in such hyperbolical terms, that one must be wanting in common sense to believe the half of such astounding records of unparalleled success. So if our cultivators of grain and stock growers will organize as intimated, Indiana will soon have a thorough, practical system or star list of her own, and from such intelligent proceedure soon make a theory the result of actual practice or experiment, from which new beginners and "gentlemen farmers" could derive some real information.—SECRETARY.

STAR (*) LIST.

EXPLANATION.—N., Northern Indiana; C., Central Indiana; S., Southern Indiana. In the Season column, S. stands for Summer, A. for Autumn, W. for Winter, E. for Early, L. for Late. In the N., C. and S. columns, three dots (...) denotes that the variety is unknown, or not fully tested; a dash (—), that it is known, but not approved a star (*). that it is generally approved; two stars (**), much approved, or popular; a dash and star (—*), that it does well in some localities only. In the Strawberry Class column, S. denotes that the blossom of the variety is Staminate, or self-impregnating; P stands for Pistillate.

APPLES.

NAME.	CLASS.	COLOR.	SEASON.	SIZE.	N.	C.	S.
American Golden Russet	Acid	P. russ.	E. W.	Medium	*	*	*
American Summer Pearmain	S. acid	Striped	L. S.	Large	*	*	*
Astrachan Red	Acid	Red	S.	Large	*	*	*
Autumn Seek-no-further	S. acid	Striped	A.	Medium	...	*	...
Autumnal Swaar	Sweet	Yellow	A.	Large	*	...	...
Baily's Sweet	Sweet	Striped	W.	Large	*	...	...
Baldwin	Acid	Striped	W.	Large	*	*	—
Belleflour, yellow	Acid	Yellow	E. W.	Large	*	*	*
Belmont	Acid	Yellow	E. W.	Large	*	**	*
Benoni	S. acid	Striped	L. S.	Medium	—	*	*
Ben Davis	Acid	Striped	W.	Large	**	**	**
Broadwell	Sweet	Yellow	W.	Large	...	*	...
Buckingham	S. acid	Striped	A.	Large	...	*	**
Carolina Red June	Acid	Red	E. S.	Small	—	*	*
Campfield	Sweet	Blushed	L. W.	Medium	*	*	*
Canada Reinett	Acid	Yellow	W.	Large	—*	...	...
Cooper	S. acid	Striped	A.	Large	*	*	...
Cooper's Market	S. acid	Striped	W.	Medium	...	...	...
Dominie	S. acid	Striped	W.	Large	—*	*	...
Daniel	S. acid	Striped	E. S.	Small	*	*	...
Dutchess of Oldenburg	Acid	Striped	S.	Medium	**	...	...
Early Harvest	Acid	P. yel.	S.	Medium	*	**	*
Early Pennock	Acid	Striped	S.	Large	—	*	...
Early Joe	S. acid	Striped	S.	Small.	*	*	...
Early Strawberry	S. acid	Striped	S.	Small	—*	...	**
English Golden Russet	Acid	Russet	W.	Medium	—*	—*	*
Evening Party	S. acid	Striped	W.	Small	*	...	...
Fallawater	Sweet	Blushed	E. W.	Large	*	**	**
Fall Orange	Acid	Yellow	A.	Large	*	...	...
Fall Pippin	Acid	Yellow	A.	V. Large	*	*	**
Fall Wine	S. acid	R. str.	A.	Medium	*	**	**
Fameuse	S. acid	Striped	A.	Medium	*	*	*
Fenley	Acid	Yellow	S.	Large	...	...	*
Fulton	Acid	Bls yel.	W.	Large	*	*	...
Gilpin	Sweet	R. str.	L. W.	Small	—	*	*
Golden Sweeting	Sweet	Yellow	S.	Large	**	**	**
Gravenstein	Acid	Striped	S.	Large	*	—*	...
Hagloe	Acid	Striped	S.	Large	...	*	—

APPLES—Continued.

NAME.	CLASS.	COLOR.	SEASON.	SIZE.	N.	C.	S.
Hoops	Acid	Striped	L. W	Medium	...	*	*
High-top Sweeting	Sweet	Green	S	Medium	*	*	*
Hubarustou's Nonesuch	Acid	Striped	E. W	Large	—*	*	...
Indiana Favorite	S. acid	Striped	W	Medium	...	**	...
Jersey Black	S. acid	Drk Red.	W	Medium	**	**	**
Jerminite	S. acid	Striped	L. W	Medium	...	*	...
Jersey Sweet	Sweet	Striped	S	Medium	*	*	
Jonathan	Acid	R. str	W	Medium	*	*	
Keswick Codlin	Acid	Yellow	S	Medium	**	*	
King of Tompkins County	S. acid	Striped	W	Large	*	*	
Large Yellow Bough	Sweet	P. yel	S	Large	*	*	
Ladies Sweeting	Sweet	Striped	W	Large	*	...	...
Late Strawberry	S. acid	Striped	A	Medium	*	...	...
London Sweet	Sweet	P. yel	W	Large	*	...	...
Lowell	S. acid	Yellow	A	Large	*	*	...
Maiden Blush	Acid	Y. Blsh	A	Large	**	**	**
McAfee's Nonesuch	Acid	Striped	W	Large	...	*	...
Melon	S. acid	Striped	E. W	Large	*	*	...
Milam	S. acid	R. str	W	Small	...	*	**
Mother	S. acid	Striped	A	Medium	*	*	...
Moore's Sweeting	Sweet	R. str	L. W	Medium	...	**	**
Michael Henry Pippin	Sweet	Green	E. W	Medium	...	*	...
Newtown Pippin	Acid	Green	L. W	Large	...	*	—
Northern Spy	Acid	Striped	W	Large	**	*	*
Paradise Winter Sweet	Sweet	Yellow	W	Large	*	...	...
Peck's Pleasant	S. acid	Yellow	E. W,	Large	**	**	*
Pennsylvania Vandevere	Acid	Striped	W	Medium	*	*	*
Pickard	Acid	Yellow	W	Large	...	*	*
Porter	Acid	Yellow	A	R. Large	*	**	*
Prior's Red	S. acid	R. str	E. W	Medium	—	*	*
Prolific Beauty	S. acid	Striped	E. W	Large	*	...	...
Primate	S. acid	P. yel	S	R. Large	*	*	...
Rambo	S. acid	Striped	E. W	Medium	**	**	**
Ramsdell's Sweet	Sweet	R. str	A	Large	*	...	...
Rawles' Janet	S. acid	Striped	L. W	Medium	...	**	**
Red Canada	S. acid	R. str	W	Medium	*	...	*
Rhode Island Greening	Acid	Green	E. W	Large	—*	*	...
Roman Stem	S. acid	Yellow	W	Small	—	*	—
Rome Beauty	S. acid	Striped	W	Large	*	**	**
Red Stripe	Acid	Striped	S	R. Large	*	**	...
Ragan's Red	Acid	Red	W	Large	...	*	...
St. Lawrence	Acid	Striped	A	Large	*	...	...
Spitzenberg Newtown	S. acid	Striped	E. W	Large	*	*	*
Spitzenberg Esopus	Acid	Striped	E. W	Medium	*	*	*
Summer Rose	S. acid	Y. Blsh	S	Small	...	*	...
Smith's Cider	S. acid	Striped	W	Large	**	**	**
Summer Queen	Acid	Striped	S	Medium	—*	—*	*
Summer Sweet Paradise	Sweet	Yellow	S	Medium	*	—*	*
Swaar	S. acid	Yellow	W	Large	*	*	...
Talmon's Sweeting	Sweet	White	W	Medium	*	*	*
Trenton Early	S. acid	Yellow	A	Large	*	**	*
Twenty Ounce	Acid	Striped	A	V. Large	...	**	**
Victuals and Drink	Sweet	Green	A	Large	*	*	...
Wagoner	S. acid	R. str	W	Medium	**	**	**
Westfield Seek-no-further	S. acid	Striped	W	Large	*	*	*
White Pippin	Acid	Pale	W	Large	*	**	*
Winesap	Acid	R. str	W	Medium	*	**	**
Willow Twig	Acid	Striped	L. W	Medium	...	—*	*
Williams' Favorite	S. acid	Striped	E. S	Large	*	...	...

PEARS.

NAME.	COLOR.	SEASON.	SIZE.	N.	C.	S.
Bartlett	Yellow	E. A.	Large	**	**	**
Belle Lucrative	Green yellow	M. A.	Medium	**	**	*
Beurre D' Anjou	Rus. yellow	M. A.	Large	*	*	*
Beurre Diell	Rus. yellow	L. A.	Large	*	*	*
Beurre Giffard	Mot. yellow	L. S.	Medium	*	*	
Bloodgood	Yellow	L. S.	Small	—*	*	*
Doyenne D' Ete	Blh. yellow	E. S.	Small	*		
Doyenne White	Yellow	E. A.	Medium	*	**	**
Duches D' Angouleme	Green yellow	L. A.	V. large	*	*	*
Early Catherine	Brown yellow	E. S.	Small	*	*	*
Flemish Beauty	Brown yellow	M. A.	Large	**	**	**
Golden Beurre of Bilboa	Gold yellow	E. A.	Medium	*	*	
Glout Morceau	Yellow	Win.	Large	—*	...	...
Howell	Yellow	Aut.	Large	*	...	...
Julienne	Green yellow	L. S.	Medium	—	*	...
Madeline	Yellow	E. S.	Medium	*	*	...
Onandaga	Rus. green	L. A.	Large	*	*	—
Rostiezer	Green brown	L. S.	Small	*	**	...
Seckel	Brown	M. A.	Small	**	**	**
Sheldon	Yellow	M. A.	Medium	*	**	*
Stevens' Genesee	Yellow	E. A.	Large	*	*	...
Tyson	Yellow	E. A.	Small	*	*	*
Vicar of Winkfield	Yellow	E. W.	Large	*	*	*
Winter Nellis	Green yellow	E. S.	Medium	*	*	*
ON QUINCE.						
Louise Bonne D' Jersey				**	**	
Buffum				*	*	
Maria Louisa				...	*	

PEACHES.

NAME.	CLASS.	SEASON.	SIZE.	COLOR.	N.	C.	S.
Bergen's Yellow	Free	Sept	V. large	Orange		—	*
Columbia	Free	Sept	Large	Dark red	...	*	*
Cooledge's Favorite	Free	August	Medium	White	*	...	*
Crawford's Early	Free	August	V. large	Blsh. Yellow	*	*	**
Crawford's Late	Free	L. Sept.	V. large	Yellow	*	*	**
Cole's Early Red	Free	August	Medium	Red	...	*	...
Druid Hill	Free	Sept	V. large	White	...	**	—
Durham's Favorite					...	*	...
Early Barnard	Free	L. Aug.	Medium	Yellow		*	...
Early Tillotson	Free	August	Medium	Red	...	—	—*
Fay's Early Anne	Free	L. July	Small	Green white	...	*	...
George the Fourth	Free	L. Aug.	Large	White blush	...	*	...
Grosse Mignonne	Free	August	Large	Red yellow	*	*	*
Hale's Early	Free	July	Medium	Red	*	**	**
Heath Cling	Cling	October	V. large	White	**	**	**
Lagrange	Free	L. Sept.	Large	White	—	*	**
Large Early York	Free	August	Large	Red	—	—	...
Late Heath Free	Free	Sept	Large	White	**	*	*
Morris' White	Free	Sept	Large	White	—	*	**
Morris' Red Rareripe	Free	August	Large	Green red	—	**	*
Old Mixon Free	Free	Sept	Large	Yellow red	*	—*	*
Old Mixon Cling	Cling	Sept	Large	Red	**	**	**
October Yellow					...	*	**
Royal George	Free	August	Medium	White red	*	...	...
Serate Early York	Free	August	Medium	Red	**	*	*
Smock	Free	L. Sept.	Large	Yellow		*	*
Snow	Free	Sept	Large	White	—	—	—
Stump the World	Free	Sept	Large	White	...	*	...

STRAWBERRIES.

NAME.	CLASS.	SEASON.	SIZE.	COLOR.	N.	C.	S.
Agriculturist	S	Medium.	V. large	Dark crimson	*	*	*
Austin Seedling	S	Late	V. large	Scarlet	*		*
Burr's New Pine	P	Early	Medium	Crim. scarlet	*	*	*
Fillmore	P	Medium.	Large	Dark crimson	*	*	
French's Seedling	S	Early	Medium	Scarlet	*	—	
Hooker	S	Medium.	Large	Dark crimson	*	*	*
Hovey's Seedling	P	Medium.	Large	Deep scarlet		—	—
Jenny Lind	S	Early	Medium	Bright scarlet	*		
Jucunda	S	Medium.	Large	Dark scarlet	*	*	*
Lenning's White	S	Medium.	Large	White	*	*	*
McAvoy's Superior	P	Late	V. large	Dark crimson	*	*	*
Mote's Seedling		Medium.	Large	Scarlet			
Russell	P	Medium.	V large	Crimson	**	*	*
Triomphe De Gand	S	Medium.	V. large	Crimson	*		*
Wilson's Albany	S	Medium.	V large	Dark crimson	**	**	**

It is proper to say that this list is not claimed to be a finality, but receives the attention of the society in the way of amendments, additions, corrections and changes, as further experience dictates.

SPECIAL PREMIUMS.

SECTION XI.

Best display of Fruits of all kinds, from any county, district or local horticultural society, two entries.

Allen County Horticultural Society, Fort Wayne, Indiana, first premium	$30 00

Sixty varieties apples; twenty-two varieties pears.

Plainfield Horticultural Society, Hendricks county, Indiana, second premium	20 00

Sixty varieties apples, many inferior sorts; twenty-one varieties grapes; eight plates peaches, without names; one plate orange quinces; one plate percimons; twenty-one varieties pears, some inferior sorts.

Best Aquarium and fixtures, four entries.

John Woodbridge & Co., Indianapolis, Indiana, first premium	10 00
Mrs. A. Wallace, Indianapolis, Indiana, second premium	5 00

Best collection Nursery Stock, two entries.

John F. Hill & Co., Indianapolis, Indiana, first premium	$20 00
William Patrick, Terre Haute, Indiana, second premium	10 00

Display of Wine made in Indiana, three entries.

J. T. Francis, Indianapolis, Indiana, first premium	15 00
Mrs. A. Wallace, Indianapolis, Indiana, second premium	10 00

Currant Wine, three entries.

John T. Francis, Indianapolis, Indiana, premium,	Diploma

Strawberry Wine, three entries.

John T. Francis, Indianapolis, Indiana, premium,	Diploma

Blackberry Wine, three entries.

H. Mankedick, Indianapolis, Indiana, premium	Diploma

WM. A. RAGAN,
J. W. FURNACE,
J. T. FRANCIS,
Committee.

[NOTE.—I did not deem it important to publish the long lists of varieties accompanying the first class in the foregoing section, as no special information would be imparted by their publication.—SECRETARY.]

Hon. Fielding Beeler, Secretary
Indiana State Board of Agriculture:

DEAR SIR:—Near the close of the late State Fair, a box of apples was received at Floral Hall from S. Burnett, a prominent member of the State Horticultural Society, of Vincennes, Knox county. The managers of the Horticultural Department kindly presented me the entire collection on condition that I should write a page for their annual report noticing the fruit, it having been received too late to be entered in competition or receive attention at the hands of the awarding committee. The report of that society being already in print, I send the promised notice to you, asking its publication in your annual report for 1869.

This collection I found to embrace some thirty-five distinct varieties, all really first-class specimens, and most of them leading varieties of great value and superior excellence. Not having been engaged actively for some years in my first and most cherished vocation, horticulture, a few were strangers to me, but finer specimens of "Jonathan," "Northern Spy," "Wagner," "King of Tompkins County," "Swaar," "Ben Davis," "Winesap," and many others, I have never seen surpassed for size and beauty. They were uniformly smooth, clear, and most of them exquisitely colored. They contrasted so strongly in all their points with the same sorts as usually seen from Southern and Central Indiana, that we would scarcely recognize them as coming from any quarter save from Myers, of St. Joseph county, the beauty of whose specimens, exhibited at former fairs, will long be remembered by all who saw them as almost minature mirrors, their tender coats so clear and pure.

Indeed, the prevailing idea was for many years that Southern and Central Indiana was not well adapted to a perfect growth of the apple. They scabbed, were wormy, covered with fungia spots, dry rot affected them, and a score of other embarrassments attended their cultivation. It has been, however, clearly shown by the results attained by Messrs. Burnett and Shoemaker, of Southern Indiana—not by one years' experience, or one years' crop, but by many of them—that "scabby" cultivation begets like results. True, some tender-coated sorts may be more easily affected in this way, but in the main, *intelligent cultivation* the State over presents satisfactory results.

Fruit growers in Northern Indiana had best look well to their future, or State fair premiums on fruit will find their way into Knox, Perry, and other southern counties, to the discomfiture of our friends in Allen, St. Joseph, and Laporte, who have heretofore considered themselves safe behind the overshadowing beauty of their specimens, when compared with those from the "scabby region," as Southern Indiana has been termed.

The writer of late years has seen much of Indiana, more especially that portion called the "Pocket." There can be no reason why all that region bordering river navigation should not, under proper cultivation, become one vast orchard, annually yielding abundant and lucrative crops. With the completion of their railroads now under way, and the great river, Southern Indiana, with her vast mineral wealth, must speedily show a more rapid advancement than has hitherto characterized any portion of the State. The Pittsburg of the West will spring up in our vast coal fields of Spencer, Owen, Martin, and other southern and southwestern counties, while our fruit growers remain in possession of the surface, undisturbed in their labor of growing fruits for the vast markets at their command in all directions.

So, gentlemen, with many thanks for the apples and the privilege of renewing several old acquaintances, which I have tasted with much pleasure, I have only to say that I will write you for another box.

Respectfully,

W. H. Loomis.

SECTION XII—FLOWERS—AMATEURS' LIST.

Rule.—Nurserymen and Dealers excluded from this Section.

Collection Greenhouse Plants, not Including those for Bedding Out, six entries.

Mrs. Andrew Wallace, Indianapolis, Ind., first premium	$15 00
Geo. W. Idner, Cumberland, Ind., second premium	10 00

Collection Dahlias, four entries.

Mrs. H. R. Moore, Greencastle, Ind., first premium	5 00

Mrs. Andrew Wallace, Indianapolis, Ind., second premium	$2 00

Collection Bedding-out Plants in Bloom, three entries.

Mrs. Andrew Wallace, Indianapolis, Ind., first premium	8 00
Mrs. M. Howland, Indianapolis, Ind., second premium	4 00

Basket Fresh Cut Flowers, four entries.

Mrs. Emma Ragan, Indianapolis, Ind., first premium	3 00
Mrs. Andrew Wallace, Indianapolis, Ind., second premium	2 00

Bouquet Round, three entries.

Miss Jennie Ragan, Fillmore, Ind., first premium	3 00
Mrs. John Herriott, Franklin, Ind., second premium	2 00

Bouquet Flat, four entries.

Miss Belle Ragan, Fillmore, Ind., first premium	3 00
Mrs. Amy Ragan, Fillmore, Ind., second premium	2 00

PROFESSIONAL LIST.

Rule.—Exclusively for Professional Dealers.

Collection Green-House Plants, one entry.

John F. Hill, Indianapolis, Ind., premium, diploma and	15 00

Twenty-five Varieties Dahlias, three entries.

Heinel Bros., Terre Haute, Ind., premium, diploma and	5 00

Collection Bedding-out Plants in Bloom, one entry.

John F. Hill, Indianapolis, Ind., premium, diploma and	5 00

Basket Cut Flowers, four entries.

John F. Hill, Indianapolis, Ind., premium $3 00

Basket Cut Roses, three entries.

John F. Hill, Indianapolis, Ind., premium 3 00

Round Bouquet, three entries.

John F. Hill, Indianapolis, Ind., premium 3 00

Flat Bouquet, three entries.

John Hack, Indianapolis, Ind., premium.......... 3 00

Mantle Bouquet, two entries.

Heinel Bros., Terre Haute, Ind., premium 3 00

Collection Winter Blooming Plants, one entry.

John F. Hill, Indianapolis, Ind., premium, diploma and 5 00

Collection Camelias, one entry.

John F. Hill, Indianapolis, Ind., premium 5 00

Collection Variegated-Leaved Plants, three entries.

John F. Hill, Indianapolis, Ind., premium 5 00

Best Arrangement of Plants for Exhibition, one entry.

John F. Hill, Indianapolis, Ind., premium, diploma and 5 00

Your committee have been delighted with the great beauty and real excellence of the exhibition in this department. The offerings of the goddess Flora blend so kindly and appropriately with the productions of her sister, goddess Pommona, whose fruits, though more substantial, can be no more beautiful than these which we have just examined; besides, the association of the two in one, fit so nicely in Floral Hall that both should be cared for. The exhibitors in this class will receive our special commendation in this behalf, and we hope they will be likewise remembered by the Board of Agriculture. They have each done themselves credit, and added no little to the interest of this State fair in presenting collections of utility and beauty not run by steam, or fast horses.

A. FURNAS,
MRS. NANCY PEARSON,
MRS. SARAH HINTON,
Committee.

SECTION XIII—JELLIES, PRESERVES, PICKLES, AND CANNED FRUITS.

RULE AND SPECIAL INSTRUCTIONS TO JUDGES.—No article can be entered to compete for more than one premium, except as part of a collection in the same class. Duplicate statements* must be furnished showing the process followed in the manufacture of table comforts. All articles in this class must have been made by the exhibitor. The judges will test the articles, and make a full written report of the result of their investigations.

Collection Jellies, six entries.

Mrs. Benj. Shank, Indianapolis, Ind., first premium. Fifty-seven varieties.	$5 00
Mrs. John Herriott, Franklin, Ind., second premium Fifty varieties.	3 00

Collection Preserves, five entries.

Mrs. John Herriott, Franklin, Ind., first premium... Twenty-three varieties.	5 00
Mrs. A. Wallace, Indianapolis, Ind., second premium Twenty-one varieties.	3 00

Collection Fruit Butter, four entries.

Mrs. John Herriott, Franklin, Ind., first premium...	5 00
Mrs. A. Wallace, Indianapolis, Ind., second premium	3 00

Collection Pickles, nine entries.

Mrs. A. Wallace, Indianapolis, Ind., first premium. Twenty varieties.	5 00
Mrs. John Herriott, Franklin, Ind., second premium	3 00

Collection Dried Fruit, two entries.

J. R. Boswell, Indianapolis, Ind., premium........	$3 00

Collection Canned Fruit. ten entries.

Mrs. G. M. Freeman, Franklin, Ind., first premium. Seventy varieties.	10 00
Mrs. John Herriott, Franklin, Ind., second premium Fifty-six varieties.	5 00

Total number varieties exhibited, 261.

Collection Jellies, Preserves, Butter, Pickles, and Canned Fruit, six entries. *

Mrs. John Herriott, Franklin, Ind., first premium...	15 00
Mrs. A. Wallace, Indianapolis, Ind., second premium	5 00

John O. Wishard,
Mrs. M. J. Mayhew,
Mrs. M. A. Hippard,
Committee.

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*Note.—No statements were filed, or if so, cannot be found.—Sec'y.

AGRICULTURAL DEPARTMENT.

NON-ENUMERATED—FIFTY ENTRIES.

Nos. 13 to 16, inclusive.—A. Freeman, Franklin, Indiana, collection of vegetable and garden seeds. Diploma recommended.

No. 23.—Alexander Heron, specimen of original Indian maize. A wonderful large ear of corn.

No. 49.—Hawkins, Timmons & Co., Chillicothe, Ohio, process for preserving sweet potatoes with lime. Highly recommended. Diploma.

No. 50.—Mrs. Nathan, Terre Haute, Indiana, three extra fine large beets.

Your committee worked until after the explosion took place, after which it was impossible to labor further.

A. A. Ekin,
J. H. Vajen,
Jno. T. Burns,
Committee.

MISCELLANEOUS DEPARTMENT.

Hon. J. D. Williams, Attending Member and Superintendent in Charge.

SECTION I.

Specimen Cotton Embroidery, nine entries.

Mrs. W. B. Williams, Putnamville, Indiana, first premium	$3 00
Miss Hettie Gordon, Indianapolis, Indiana, second premium	2 00

Ornamental Needle Work, thirteen entries.

Miss Lizzie Stump, Indianapolis, Indiana, first premium	3 00
Mrs. J. H. B. Nowland, Indianapolis, Indiana, second premium	2 00

Child's Embroidered Dress, four entries.

Fairbanks & Co., Indianapolis, Indiana, first premium	3 00
Mrs. E. Freed, Greensburg, Indiana, second premium	1 00

Specimen Tetting, seven entries.

Fanny Allen, Indianapolis, Indiana, first premium.	$3 00
Mrs. A. Eckert, Indianapolis, Indiana, second premium	2 00

Chair Tidy, twenty-nine entries.

Mrs. Mary Vance, Indianapolis, Indiana, first premium	2 00
Mrs. Lina Recker, Indianapolis, Indiana, second premium	1 00

Pin Cushion, seven entries.

Mrs. J. B. Ryan, Indianapolis, Indiana, premium	1 00

Silk Embroidery, seven entries.

Mrs. A. Condit, Indianapolis, Indiana, first premium	2 00
Miss Kittie Gordon, second premium	1 00

Ornamental Bead Work, eleven entries.

Joseph Ainonni, Lachine Rapids, Iroquois tribe, first premium	2 00
Mrs. M. Miller, Lawrenceburg, Indiana, second premium	1 00

Toilet Set Mats, five entries.

Mrs. E. R. Thurston, Indianapolis, Indiana, first premium	3 00
Miss Clara E. Shultz, Indianapolis, Indiana, second premium	2 00

Collection Best Wrought Under Garments, eleven entries.

Miss Emma Glardon, Aurora, Indiana, first premium.	3 00

Miss Emma Wagner, Madison, Indiana, second premium	$2 00

Tucked Shirt, three entries.

Fairbanks & Co., Indianapolis, Indiana, first premium	3 00
Miss Fanny Allen, Laporte, Indiana, second premium	2 00

Cotton Braiding, five entries.

Mrs. E. Freed, Greensburg, Indiana, first premium	3 00
Mrs. Lina Becker, Indianapolis, Indiana, second premium	1 00

Wm. Nelis,
Mrs. Geo. W. McConnell,
Miss Sallie Hamrick,
Committee.

SECTION II.

Tapestry Work, three entries.

Miss Flora Kahn, Indianapolis, Indiana, first premium	2 00
Miss Sue Crouthers, Indianapolis, Indiana, second premium	1 00

Ottoman Cover, three entries.

Miss M. A. Belsham, Raysville, Indiana, first premium	2 00
Miss Clara E. Shultz, Indianapolis, Indiana, second premium	1 00

Worked Chair Cover, three entries.

Mrs. Conwell, Indianapolis, Indiana, first premium	$2 00
Miss Clara E. Shultz, Indianapolis, Indiana, second premium	1 00

Lamp Mats, six entries.

Miss Clara E. Shultz, Indianapolis, Indiana, first premium	2 00
Miss M. Jones, Greencastle, Indiana, second premium	1 00

Sofa Cushion, five entries.

Miss Emma Smith, Indianapolis, Indiana, first premium	2 00
Mrs. Colonel R. R. Stewart, Terre Haute, Indiana, second premium	1 00

Fancy Worsted Work, five entries.

Miss N. J. White, Indianapolis, Indiana, first premium	3 00
Mrs. P. G. Jordon, Indianapolis, Indiana, second premium	1 00

Ornamental Hair Work, seven entries.

Mrs. L. D. Johnson, Indianapolis, Indiana, first premium	3 00
Miss A. Denney, Indianapolis, Indiana, second premium	2 00

Braided Slippers, three entries.

Miss Jennie Scofield, Indianapolis, Indiana, first premium	2 00
Mrs. Belle Hosman, Indianapolis, Indiana, second premium	1 00

Yoke and Sleeve, nine entries.

Miss Martha Smock, Crawfordsville, Indiana, first premium	$3 00
Mrs. S. Delzell, Indianapolis, Indiana, second premium	2 00

Hoop Skirts, one entry.

Fairbanks & Co., Indianapolis, Indiana, premium	2 00

Ornamental Shell Work, nine entries.

Miss E. D. Francis, Indianapolis, Indiana, first premium	3 00
Miss Sarah A. Akin, Indianapolis, Indiana, second premium	2 00

Crochet Shawl, one entry.

Mrs. Fred. Coburn, Indianapolis, Indiana, premium,	3 00

Crochet Opera Hood, five entries.

Mrs. A. Newbacher, Indianapolis, Indiana, first premium	2 00
Mrs. Lina Recker, Indianapolis, Indiana, second premium	1 00

Carriage Afghan, seven entries.

Mrs. Dr. W. W. Eggert, Indianapolis, Indiana, first premium	3 00
Mrs. J. Marsee, Indianapolis, Indiana, second premium	2 00

Baby Carriage Afghan, seven entries.

Mrs. J. E. Lovecraft, Indianapolis, Indiana, first premium	2 00
Mrs. Dan. G. Williams, Indianapolis, Indiana, second premium	1 00

Neat Darned Stockings, three entries.

Miss Clara E. Shultz, Indianapolis, Indiana, premium	$1 00

Gentlemen of the Board:

We are astonished at your offering such a pitiful premium on these *darn stockings;* we venture it would be worth the premium to *darn yours*, especially without washing, so one of two things would be necessary, either soap or perfumery. These stockings are destined to be darned—darned if they be holy and darned to cover the holes.

Hearth Rug, eight entries.

Mrs. H. P. Hood, Indianapolis, Indiana, premium	$2 00

William Nelis,
Mrs. Geo. W. McConnell,
Miss Sallie Hambrick,
Committee.

SECTION III—MILLINERY, ETC.

Best Silk Bonnet, eight entries.

J. W. Copeland, Indianapolis, Indiana, first premium	5 00
J. W. Copeland, Indianapolis, Indiana, second premium	3 00

Velvet Bonnet, nine entries.

J. W. Copeland, Indianapolis, Indiana, first premium	5 00
J. W. Copeland, Indianapolis, Indiana, second premium	3 00

Straw Bonnet, three entries.

Mrs. Dietrichs, Indianapolis, Indiana, first premium,	$3 00
J. W. Copeland, Indianapolis, Indiana, second premium	2 00

Calico Dress, six entries.

Miss Nannie Henry, Indianapolis, Indiana, first premium	3 00
Miss Melissa Akin, Indianapolis, Indiana, second premium	2 00

Silk Dress, one entry.

Mrs. Clemens Patterson, Indianapolis, Indiana, premium	5 00

Woolen Dress, any goods, three entries.

Miss Jennie Hull, Indianapolis, Indiana, first premium	5 00
Mrs. Lena Recker, Indianapolis, Indiana, second premium	3 00

Display of Millinery, three entries.

J. W. Copeland, Indianapolis, Indiana, first premium	10 00
Mrs. M. Dietrichs, Indianapolis, Indiana, second premium	5 00

Ladies' Furnishing Goods, one entry.

Fairbanks & Co., Indianapolis, Indiana, premium,	Diploma

Child's Sack, two entries.

Mrs. Fred. Coburn, Indianapolis, Indiana, first premium	2 00
Mrs. Lena Recker, Indianapolis, Indiana, second premium	1 00

Child's Apron, two entries.

Fairbanks & Co., Indianapolis, Indiana, premium..	$1 00

Child's Cap, three entries.

J. W. Copeland, Indianapolis, Indiana, premium..	1 00

Lady's Head Dress, one entry.

Mrs. M. Deitrichs, Indianapolis, Indiana, premium.	2 00

Lady's Cap, four entries.

J. W. Copeland, Indianapolis, Indiana, first premium	2 00
Mrs. M. Deitrichs, Indianapolis, Indiana, second premium	1 00

Shirt, seven entries.

Mrs. Thornburg, Wabash, Indiana, first premium..	2 00
Mrs. N. W. Montgomery, Indianapolis, Indiana, second premium	1 00

Artificial Flowers, three entries,

J. W. Copeland, Indianapolis, Indiana, first premium	3 00
Mrs. M. Deitrichs, Indianapolis, Indiana, second premium	2 00

Wax Flowers, two entries.

Miss Mary McMillan, Indianapolis, Indiana, first premium	3 00
Miss Maggie Copeland, Indianapolis, Indiana, second premium	2 00

Feather Cloth Goods, one entry.

Mrs. Alice A. Condit, Franklin, Indiana, premium.	5 00

Lady's Hat, ten entries.

Mrs. M. Deitrichs, Indianapolis, Indiana, first premium	$3 00
J. W. Copeland, Indianapolis, Indiana, second premium	2 00

Wm. Nelis,
Mrs. Geo. W. McConnell,
Miss Sallie Hamrick,
Committee.

SECTION IV—QUILTS.

Worsted Quilt, thirteen entries.

N. W. Montague, Acton, Indiana, first premium	6 00
Miss Sue Crouthers, Indianapolis, Indiana, second premium	3 00

Patch Work Quilt, fourteen entries.

N. W. Montague, Acton, Indiana, first premium	6 00
Mrs. W. A. Smock, Greencastle, Indiana, second premium	3 00

White Quilt, two entries.

N. W. Montague, Acton, Indiana, first premium	6 00
Mrs. W. B. Williams, Putnamville, Indiana, second premium	3 00

Silk Quilt, seven entries.

Mrs. N. W. Montague, Acton, Indiana, first premium	6 00
Miss Ellen Ryan, Indianapolis, Indiana, second premium	3 00

Counterpane, thirteen entries.

Mrs. John Thompson, Greensburg, Indiana, first premium	$6 00
Mrs. N. W. Montague, Acton, Indiana, second premium	3 00

Knit Quilt, seven entries

Mrs. G. Anderson, Painsville, Ohio, first premium	6 00
Mrs. M. M. Ross, Indianapolis, Indiana, second premium	3 00

Bed Comfort, five entries.

Mrs. A. A. Condit, Acton, Indiana, first premium	6 00
Mrs. Fanny Stacy, Indianapolis, Indiana, second premium	3 00

WM. NELIS,
Miss SALLIE HAMRICK,
Mrs. GEO. W. McCONNELL,
Committee.

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SECTION VIII—CHEMICALS, INDIANA MANUFACTURE.

Best Varnish, two entries.

Mears & Lilly, Indianapolis, Indiana, premium	3 00

Copal Varnish, two entries.

Mears & Lilly, Indianapolis, Indiana, premium	3 00

Linseed Oil, one entry.

F. A. Boyd, Indianapolis, Indiana, premium	3 00

Lard Oil, one entry.

F. A. Boyd, Indianapolis, Indiana, premium	2 00

Hard Soap, four entries.

Francis Bergman, Indianapolis, Indiana, premium.. $2 00

Soft Soap, five entries.

Mrs. Mary Miller, Indianapolis, Indiana, premium.. 2 00

Toilet Soap, one entry.

Hall, Beasly & McCullough, Lafayette, Indiana, premium 2 00

R. T. Brown, *Committee.*

MISCELLANEOUS DEPARTMENT.

FINE ARTS.

Prof. E. T. Cox, Attending Member and Superintendent.

Note.—This department includes scientific and musical instruments.

SECTION V—PICTURE FRAMES, ENGRAVINGS, PENMANSHIP, ETC.

Collection Mirrors, one entry.

H. Daumont & Co., Indianapolis, Ind., premium... $10 00

Collection of Steel Engravings, one entry.

H. Daumont & Co., Indianapolis, Ind., premium... 3 00

Plain and Ornamental Penmanship, one entry.

Bryant & Stratton, Indianapolis, Ind., premium... 5 00

Collection Card Writing, one entry.

Bryant & Stratton, Indianapolis, Ind., premium... 2 00

Business Writing, one entry.

Bryant & Stratton, Indianapolis, Ind., premium...	$2 00

Off-hand Writing, one entry.

Bryant & Stratton, Indianapolis, Ind., premium...	2 00

Pen Drawing, one entry.

Bryant & Stratton, Indianapolis, Ind., premium...	5 00

Shell Work, any kind, one entry.

Mrs. Sarah A. Akin, Indianapolis, Ind., premium..	5 00

Agricultural Wreath, five entries.

Miss Rebecca Trueblood, Indianapolis, Ind., premium..................................	5 00

Picture Frame, any kind, three entries.

H. Daumont & Co., Indianapolis, Indiana, first premium..	3 00
Miss Fanny G. Smith, Acton, Indiana, second premium.,.......................................	2 00

S. H. Smith,
Committee.

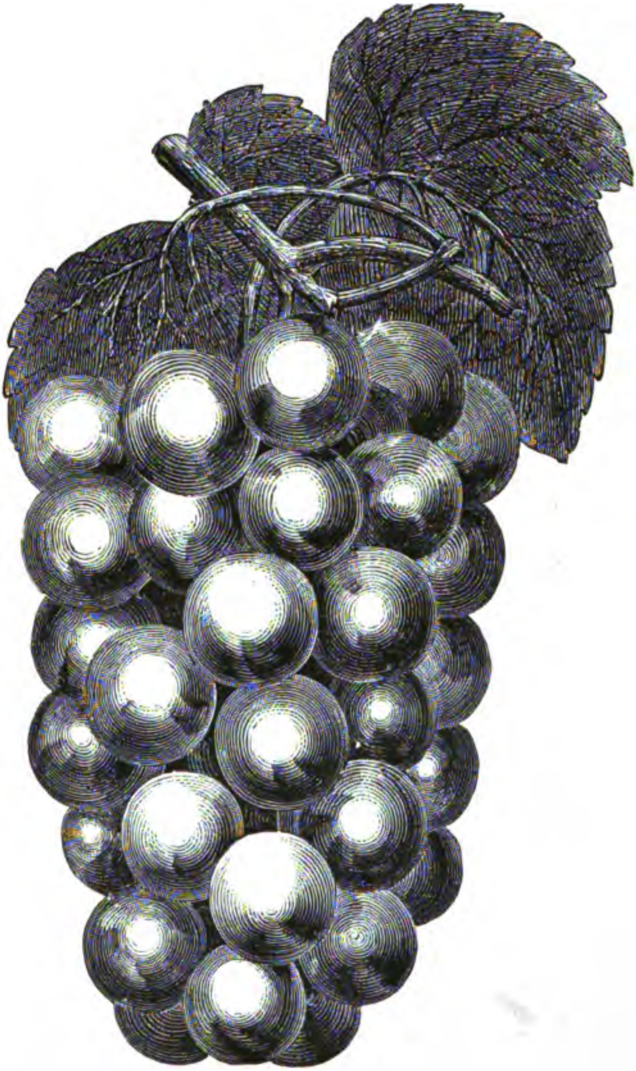
SECTION VI—PAINTINGS, DRAWINGS, &C.—AMATEUR'S LIST.

Fancy Painting in Oil, two entries.

Master William M. Chase, Indianapolis, Indiana, premium..................................	$5 00

Portrait Painting in Oil, three entries.

Master William M. Chase, Indianapolis, Indiana, premium..................................	5 00



CUYAHOGA.

Animal Painting, one entry.

Master William M. Chase, Indianapolis, Indiana, premium.................................. $5 00

Fruit Painting two entries.

Master William M. Chase, Indianapolis, Indiana, premium.................................. 5 00

Flower Painting, one entry.

Master William M. Chase, Indianapolis, Indiana, premium.................................. 5 00

Crayon Drawing, two entries.

Master William M. Chase, Indianapolis, Indiana, premium.................................. 5 00

Thos. H. Sharpe,
Lyndon A. Smith,
Miss Minnie Sprole,
Committee.

SECTION VII—PAINTING, DRAWING, &C.—PROFESSIONAL LIST.

Original Landscape in Oil, one entry.

A. B. Green, Connersville, Ind., premium....Bronze Medal

Fancy Painting in Oil, one entry.

Wm. M. Chase, Indianapolis, Indiana, premium..... 5 00

Fruit Painting in Oil, two entries.

Wm. G. Castell, Indianapolis, Indiana, premium.. 5 00

Sign Painting, one entry.

Dovey & Bro., Knightstown, Indiana, premium.... 5 00

Photograph Portrait in Oil, two entries.

D. R. Clark, Lafayette, Indiana, premium........	$10 00

Plain Card Photograph, four entries.

D. R. Clark, Lafayette, Indiana, premium.......	5 00

Collection Plain Card Photographs, two entries.

D. R. Clark, Lafayette, Indiana, premium........	10 00

Plain Photograph, four by four or larger, three entries.

D. R. Clark, Lafayette, Indiana, premium........	5 00

Collection Plain Photographs, four by four or larger, three entries.

D. R. Clark, Lafayette, Indiana, premium.......	10 00

Group Photographs, four by four or larger, not less than three, two entries.

D. R. Clark, Lafayette, Indiana, premium........	5 00

Card Photograph in water colors, one entry.

C. B. Ingraham, Indianapolis, Indiana, premium...	5 00

Photograph, four by four or larger. water colors, two entries.

C. B. Ingraham, Indianapolis, Indiana, premium...	10 00

Photographs four by four or larger, India ink, three entries.

D. R. Clark, Lafayette, Indiana, premium........	10 00

Photographs, eleven by fourteen, photographic view, three entries.

D. R. Clark, Lafayette, Indiana, premium........	10 00

Pen Drawing, one entry.

Bryant & Stratton, Indianapolis, Indiana, premium,	5 00

Architectural Drawing for Frame House, to cost 2,500, giving elevation and ground plan, one entry

H. E. Jones, Indianapolis, Indiana, not worthy.

Machine Drawing, one entry.

Jacob W. Loeper, Indianapolis, Indiana, premium... $5 00

Specimen Transfer Work, two entries.

Dovey & Bro., Knightstown, Indiana, first premium, 3 00
Frank Dovey, Knightstown, Indiana, second premium.................................... 2 00

Thos. H. Sharpe, Indianapolis,
Lyndon A. Smith, Terre Haute,
Miss Minnie Sproile, Newburg, N. Y.,
Committee.

MISCELLANEOUS DEPARTMENT.

NON-ENUMERATED—ONE HUNDRED AND NINE ENTRIES.

Mrs. Fred. Houk, Danville, Ind., cake cover. Very fine, and deserves a diploma.

H. Daumont, Indianapolis, Ind., collection of clocks. A very large and beautiful assortment, admonishing your committee to "mark well" the time, which we did, and recommend a diploma.

Fairbanks & Co., Indianapolis, Ind., collection of patent corsets. Should be classed as "American poison" or "consumption propagators," and discarded by all true American women, as worse than a useless appendage, and highly injurious to health, as generally worn.

Miss Louisa Frewzel, Indianapolis, Ind., crochet skirt. A well constructed, ingenious article, exhibitor deserving credit and a diploma.

Miss Katie Meiners, Indianapolis, Ind., machine-made tucked dress. Highly creditable.

R. R. Parker, Indianapolis, Ind., collection gentlemens' furnishing goods. Diploma.

Dovey & Bro., Knightstown, Ind., specimen of graining. A very good imitation of wood; true to nature.

F. J. Medina, Indianapolis, Ind., specimens of manufactured hair. Since the ladies will indulge in this abomination for fashion's sake, and wear hair not their own, we suppose "what can't be cured, must be endured," so recommend a diploma.

Cincinnati *Daily and Weekly Times*, Cincinnati, O., display of job printing, plain and ornamental printing, fancy printing, etc. A very fine assortment, and we recommend a diploma.

> "The Pen and the Press, blest alliance! combined
> To soften the heart and enlighten the mind;
> For that to the treasures of knowledge gave birth,
> And this sent them forth to the ends of the earth.
> Their battles for truth were triumphant indeed,
> And the rod of the tyrant was snapped like a reed;
> They were made to exalt us, to teach us, to bless,
> Those invincible brothers, the Pen and the Press."

J. K. Boswell, Indianapolis, Ind., collection dried fruits. A superior assortment, clean and excellent. Also, a similar collection by J. Hoagland, Indianapolis, Ind.

Mrs. C. C. Burns, Greensburg, Ind., collection crochet work. In great variety; a highly creditable collection, and entitled to a proper premium.

Mrs. H. M. Noble, Indianapolis, Ind., lamp mat. Very pretty and ornamental.

Your committee worked until the explosion took place, and quit, as it was impossible to labor further.

J. A. Eakin,
J. H. Vajen,
Jno. F. Burns,
Committee.

SECTION X—NON-ENUMERATED—FORTY-TWO ENTRIES.

Elizabeth Henry, Indianapolis, Ind., neck-ties. We recommend a premium.

Miss Phœbe Marquis, Indianapolis, Ind., bouquet chrystalized grasses. We recommend a premium.

Miss Lizzie Stumpf, Indianapolis, Ind., bouquet chrystalized grasses. Premium recommended.

Mrs. C. C. Burns, Greensburg, Ind., crochet piano stool cover. We recommend a premium.

Mrs. Wm. Braden, Indianapolis, Ind., pillow-cases and bolsters. Premium.

Grannan & Batcheldor, Cincinnati, Ohio, combination fence. Your committee have carefully examined this fence. For style, durability, economy of construction, and its adaptation to the purpose intended, it is worthy of your best commendation.

Mrs. Emma Prime, Indianapolis, Ind., embroidered slippers.

Mrs. Mary Pickerell, Indianapolis, Ind., skeleton leaves.

Mrs. C. C. Burns, Greensburg, Ind., crochet shell lace.

Miss Kate Meiners, Indianapolis, Ind., lady's sacque and fancy machine work.

Mrs. Wm. Braden, Indianapolis, Ind., sheet cover.

Mrs. C. C. Burns, Greensburg, Ind., crochet table cover and cake tidy.

Mrs. A. A. Scott, Indianapolis, Ind., tissue flower bouquet, single and double.

Mears & Lilly, Indianapolis, Ind., collection of varnish.

Mrs. E. O. Bowler, Indianapolis, Ind., ornamental wax work.

Mrs. J. N. Winter, Indianapolis, Ind., same.

Mrs. Susan Saler, Indianapolis, Ind., same.

Mrs. Mary Pickerell, Indianapolis, Ind., same.

Mrs. L. D. Johnson, Indianapolis, Ind., candy wreath.

Mrs. P. M. Zismer, Indianapolis, Ind., knit window curtain.

Mrs. J. B. Ryan, Indianapolis, Ind., tinsel worked watch case.

B. F. Whitaker, Whitestown, Ind., gate or door closer. A valuable attachment.

D. R. Newell, Zionsville, Ind., breech-loading rifle.

To all of the foregoing your committee recommend the award of suitable premiums.

James B. Mulky,
M. L. Bundy,
W. A. Place,
Committee

SPECIAL PREMIUMS.

LADY EQUESTRIANISM.

Mr. James Sulgrove and Hereth Bros., of Indianapolis, presented each a fine Side Saddle, to be offered as special premiums on Lady Equestrianism. Much interest was manifested in this novel exhibition on Indiana fair ground, or, in other words, this new feature. The following are the entries.

Mrs. Rena Brooks	Indianapolis, Ind.
Miss Kate Mayhew	Indianapolis, Ind.
Mrs. Lem. Hackney	Edinburg, Ind.

To Mrs. Rena Brooks was awarded the first premium, side saddle, value	$75 00
To Mrs. Lem. Hackney the second premium, side saddle, value	50 00

It is proper to state, Miss Kate Mayhew was mounted on a bad horse, and was consequently beaten.

Jas. B. Mulky,
W. A. Place,
M. L. Bundy,
Committee.

VELOCIPEDESTRIANISM.

Mile Trial of Velocipedes, nine entries.

W. V. Hoddy, Terre Haute, Vigo county, Ind., first premium Time 8:45.	$50 00
George Thudium, Indianapolis, Indiana, second premium Time 10:02.	25 00

A. Ketcham,
R. R. Spencer,
J. W. C. Shilts,
Committee.

Most Artistic Management of Velocipede, three entries.

Willie Domm, Mt. Healthy, Hamilton county, O., first premium	$25 00
William Hindman, Indianapolis, Ind., second premium	15 00

J. KEEN,
H. V. BABCOCK,
D. S. JORDON,
Committee.

FRUIT CULTURE IN INDIANA.

BY W. H. LOOMIS.

If there has been entertained in the mind of any thinking man, a belief, during the past fifteen years, that fruit culture was not eminently successful in Indiana, pecuniarily or otherwise, that idea must now, at least, give way to a better judgment, a conclusion based upon facts as numerous and as broad as our acres; for, by experience, we find that no geographical lines have been drawn beyond which fruits of all kinds, adapted to this latitude, were not reasonably successful. Neither is their cultivation barred from a single neighborhood on account of soils. There being exceptions to all general rules, so there are *specialities* in exposure, soil, and a few minor advantages dotted here and there which render localities so specially favored more peculiarily adapted to the growth of some fruits and to special sorts that are not enjoyed in common; but in the main, the conditions in Indiana are favorable alike in all localities. The great advance made in fruit culture during the past ten years, the comparison of our present supply with any former period, marks such improvement as must satisfy the most credulous of the fact that fruit culture will pay.

The apple must, however, claim the rank of first importance, for it is the first fruit, dating back to the Garden of Paradise.

* * * "laden with fair fruit, like that which grew in Paradise; the bait of Eve."

There are connected with its early history many strange and curious sayings, as expressed by Pliny and other ancient writers, as follows:

The apple, as most other European fruits, which now appear indigenous, is probably a native of the East.

The Prophet Joel, enumerating the trees of Syria, says: "The vine is dried up, and the fig tree languishes; the pomegranate tree, the palm tree, also, and the apple tree, even all the trees of the field, are withered."

The cultivated apple was probably scarce at Rome, in the time of Pliny, for he states that there were some apple trees in the villages near the city, which yielded more profit than a small farm.

The art of grafting was at that period, either very recently discovered, or not much known. Pliny mentions apple trees "that will honor the first grafters *forever*;" and this sort of praise belongs to the infancy of the art.

We find in an old English work, of 1804, the following:

"The celebrated Golden Pippin has been considered as a native of England, and noticed as such by French and Dutch writers. Pippins are so called because the trees were raised from pip seed, and bore the apples which gave them celebrity, without grafting. In the thirty-seventh year of the same king, (Henry VIII,) we find the barking of apple trees declared a felony—the passage of the law was therefore for the protection of fruit growers."—[*Young's Agriculture, published in* 1763.]

The growth of the more esteemed apple trees had made such a general progress in half a century that we find Shakspeare putting these words in the mouth of Justice Shallow, in his invitation to Fallstaff: "You shall see mine orchard, where, in an arbor, we will eat a last year's pippin of *my own grafting*." Sir Hugh Evans, in the "Merry Wives of Windsor," says: "I will make an end of my dinner—there's pippins and cheese to come." Pippins were, therefore, in the time of Shakspeare, delicacies for the desert.

Cider became a general beverage before the time of Charles II, and had been in limited use a full century before.

About the middle of the sixteenth century, although no wines were permitted to exceed the price of twelve pence per gallon, we find a law enacted by which no person—except those who could expend a hundred marks annually, or were of noble birth—should keep in his house any vessel of wine exceeding ten gallons; and we would not now object to either of those old conditions, or demur at the price.

In the year 1635 a patent was granted for making wine from the dried grapes of Spain and Portugal, and the patentee set forth that his wine would keep good for many years.

Cox, an English pomologist of the last century, names 1,500 varieties of apples as being distinct sorts, and names the following as his best sorts: Wormsley Pippin, Ribston Pippin, Hertfordshire Pearmain, Rennet du Canada, Dutch Mignonne, Newtown Pippin, and Boston Russet—for the table; also, Keswick, Hawthornden Codlins, Gravenstein, Blenheim Pippin, Brabant, Belleflower, London Pippin, Calville, and so on. Most of these are now grown in every county in the State. Some of them will be found in the State Horticultural Society's Star List.

I need not, in this connection, refer to varieties specially; these are fully set forth in the State Society's Star List, and descriptive works are abundant—they are within the reach of all. The Proceedings of the State Society are furnished free to all its members, and every farmer in Indiana may become a member by forwarding one dollar to the Secretary, President, or Treasurer, at Indianapolis.

No argument would seem to be necessary in order to satisfy farmers that growing apples is profitable; but when they plant so few trees and there are many who plant none at all, something is evidently out of joint. They are either misinformed or not informed at all.

Show a farmer who is largely engaged in growing hogs, that the Chester White, all things considered, is worth to him one dollar per head over his Swill Pail Breed and he is not slow to adopt the Chester White.

Show him equally clear that he can plant forty-eight trees to the acre, thirty feet apart, and that eight years after planting they will yield him two barrels per tree—or if he plant four acres, thus yielding three hundred and eighty-four barrels, worth anywhere in Indiana $2.50 per barrel, making a net return of $960 for four acres of orcharding, and he views the proposition with extreme doubt; yet there is scarcely a township in the State but numerous instances are matters of fact, clearly showing the above to be a very low estimate.

An item contained in the report of the Vigo County Society's Report for 1868, says in reference to apples, "sixteen trees yielded four hundred bushels of Hoop apples that sold at $1.50 and $1.75 per. bushel—trees forty years old."

Another advantage, and it is an important one, the ground still remains and can be put to various purposes connected with farming, rendering it quite as profitable as a similar number of acres not in orchard. The apple crop is as reliable one year with another as are any of the cereals or vegetables, while the price of the former is less fluctuating.

All the cultivation necessary after the first two years is no more than that bestowed in order to insure a good crop of corn. The site should be high and dry, to guard the better against early and late frosts, and if possible, the ground should be underdrained; but this is not more necessary for apple trees than for corn or wheat, for we aver that underdraining is a necessity for a perfect development of any crop, on all soils save a deep, dry gravel.

Underdraining will pay, and that handsomely, and the deeper the drain is laid consistent with sufficient fall along the line of the drain, and especially at the outlet, the better. Thorough underdraining carries with it other benefits than merely carrying off surplus water: it areates and thus enlivens the soil, opens the pores, whereby air, oxygen and hydrogen are admitted to the roots of plants, and as the roots of plants are known to penetrate to the depth of many feet, if the conditions be favorable, for the roots of wheat, clover, some of the grasses, etc., have been traced to the depth of six and eight feet. But they will not so descend where cold, stagnant water abounds in the subsoil. Their little rootlets or spongioles are in search of moisture, but not by the pail full; therefore it is that soil that has been well drained to the depth of four to six feet must necessarily render a greater amount of soil available to the roots of a growing crop than would be the case if the drain were laid only two feet deep. If this reasoning be good as applied to cereals and vegetables, it is ten-fold more so as applied to the growth of trees, for they also require "dry feet" during all stages of growth.

As a matter of course, no one would think at the present day of using anything but drain tile for this purpose.

The after cultivation of apples is surrounded with no mystery—common sense, acute observation and a little experience will point out the proper course. Free thought, guided by reason and judgment, nine times in ten is a better teacher than scientific essays or long-winded treatise on specialties; as, for instance, if in washing one's self he finds thick lime water a health-giving bath, removing all scurvy and rendering the skin soft and pliable, conducive of sprightliness and thrift, reason would teach that the same application applied to the bodies and branches of fruit trees would be also advantageous; but since we know that such a wash would be deleterious to humanity, poisoning the skin and closing the pores, so also is its application to fruit trees detrimental and highly injurious. Yet it is a custom much in use, and without any reason except that some granny has recommended it. The best and cheapest wash for fruit trees is wood ashes lie, reduced about one-half its usual strength, applied with a swab on the end of a strong broom handle, vigorously rubbed to the body and larger branches, under a pressure of fifty to seventy-five pounds of "elbow grease." This effectually removes all scales, hiding places for insects, dirt, opens the pores of the bark and conduces greatly to the health of trees, thus improving the quality of the fruit.

A friend, a few years since, saw boiling water recommended as a sure remedy against the depredations of the peach tree grub, by first removing the earth about the stem of the tree, forming a basin, filling it with boiling water. Our friend argued that if one application would do good, more would do more good, and he followed it up for several days. Seeing him a few days afterward, we enquired: " What success ? " " O," said he, " I succeeded in killing the infamous bugs, *and the tree in the bargain !* " Thus we have been led to say that common sense is the best guide in all the little details connected with fruit culture, and one should be exceedingly shy about adopting as sound policy receipts and directions that perform such marvelous results without labor.

Pruning is a matter of the greatest importance, for by it failure or success, to a great extent, depends. As a general rule, young trees from the nursery need not be pruned the first year, except it be to cut back the branches, thus reducing the number of buds to the more or less mutilated condition of the roots, the rough and broken ends of which should be cut off with a sharp knife before planting, thus aiding granulation and a speedy emission of new roots. The second year, all trees that have not made a vigorous growth should be removed, their places supplied with strong, vigorous trees, in order to promote uniformity in the growth and health of the orchard. The second year, the trees should be pruned to from three to four feet high, and in no case more than this. Some sorts, as Yellow Belleflour, may be gradually pruned to six feet, as it is of a drooping willow like growth, but this height should not be attained until the top is broad enough to shade the body of the tree. Study carefully the position of the branches before removing any, and with your mind's eye imagine what branches, if all were allowed to grow, must necessarily be removed, when the tree is large enough to prevent crowding, then remove all such branches, and continue to do so for all time. By adopting this use of one's thoughts and study to the every day growth of trees, no pruning implement save the pocket knife will be necessary. The entire growth of the tree is preserved and economized, having no large branches in after years that must be cruelly removed with the hand-saw, though they be capable of bearing bushels of apples. The advantages thus gained by low pruning, intelligent foresight, and attention, are found to be these:

1. From three to four years are gained by bringing the tree to early bearing; whereas, by the old practice, the time was occupied to get a tall tree—a miniature liberty pole—to be blown over by the first storm, or that one might in after years plow close up to the trees, thus regarding them as cumbers of the ground, instead of a pleasant, lucrative farm investment.

2. Uniformity of growth and uprightness, enabling them to withstand the wind, and maintain a sure upright position, the top of the tree in reach of your pocket knife, as we have above advised.

3. The fruit is gathered with much less expense, the plow is kept at a respectable distance from the best roots, and the bodies of the trees are not annually peeled with the ever-mischievous whiffletrees, and the ground is shaded and mulched from the scorching rays of the sun during the heated term.

4. The bodies being thus shaded and upright, are protected from the sun's hot rays, and remain sound and healthy for all time.

I need hardly refer to the fact that there is scarcely a fruit tree in Indiana that has been ten years planted, and pruned up as per the prevailing custom, but is scorched and blistered on the southwest side, and leaning in an angle of from ten to fifteen degrees to the northwest—so utterly diseased and unsightly that its owner is debating, and in doubt, whether or not it should be cut down. This blistering is caused by the warm rays of the sun, both in winter and summer. In winter by the sun's rays striking the exposed part of the body every day, thawing out the sap vessels, when they are again frozen at night, and so on *ad infinitum.* Also in summer by the intense heat of the sun's rays scalding the sap, destroying the pores of the bark, which soon cracks and loosens, making an excellent abode for all kinds of borers and other injurious insects; and not one of these affections, so common in all our trimmed up orchards, can be found on the north side of the tree—nor can they be found anywhere where the body of the tree is shaded, either by its own branches or otherwise.

These remarks, though designed to apply more particularly to the apple, are nevertheless equally appropriate to all other classes of fruit trees; but as the apple is first in importance, so easy of cultivation, and the fruit adapted to so many uses, culinary and otherwise, it is entitled to the first consideration. We have not named varieties, nor is it necessary, since we have referred to the transactions of the State Horticultural Society* in the commencement of this article. Prof. Black, in his "Cyclopedæ of Modern Agriculture," says: "All good apples, and many common kinds, are produced by the process termed grafting," and that the "best kinds, in all countries, are the varieties of pippins," and "the varieties of russet apple the most lasting." We have already advised against the theories of these pen and ink grannys, but the foregoing is so strong of utter knownothing-ism on their part that we could not wave at least a reference to its absurdity.

The uses to which apples are adapted are so numerous that to name them would make quite a catalogue; and the various recipes for their preparation would form a large cook-book. Neither would it be void of general interest, for who does not remember his first apple dumpling, Yankee apple sauce, or Hoosier apple butter, or baked winesaps, smothered in sugar and cream?—

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* See Star List and awards of premiums at the State Fair, published in this volume, pages 218, 219, 220, and 221.—SECRETARY.

> "That flings off famine from its fertile breast,
> A princely banquet for the gathering guests."

But these good old modes of cookery, as practiced by our mothers and grandmothers, are becoming pleasures and luxuries that were. Modern fashion is likely to upset our old recollections of apple sauce "and sich," as everything now-a-days must be preserved or canned—spoiled with sugar, and otherwise maltreated, under French recipes and nobby cookery, until it is a waste of good apples to take them to the kitchen at all. Better, by far, take them in hand school day *a la mode.*

One of the most important uses to which apples *alone* are adapted is a national demand for pure cider vinegar. True, our drug stores and provision depots are always well supplied with so-called cider vinegar, but "the recollection of man runneth not back to the day" when the first drop of cider entered the barrels containing the vile, poisonous counterfeit. It is manifest that an almost indispensable article for the table of both rich and poor—a necessary condiment, conducive, in a large degree, to health—should receive the attention its importance demands. The pure article should be abundant, and the counterfeit prohibited.

Dr. David Lee, a well known eminent chemist, when in Washington City, wrote a lengthy article for the *Country Gentleman*, on the art of vinegar making, from which the following brief extract is taken:

"There are many reasons why the art of making vinegar by the quick, scientific process should be universally known, a few of which I will name:

"1. It will drive out of the market diluted oil of vitriol, now extensively used under the name of vinegar, to the destruction of human teeth, the injury of the bones and general health. Twenty dentists are now required to take care of the damaged teeth of a population that would have employed only one, forty years ago, when vinegar was acetic acid, derived from a vegetable source, unadulterated by any mineral, acid or poison.

"2. Acetic acid in hard cider, and in many other forms, has long been known to prevent jaundice, billious fevers, constipation of the bowels, ague and fever, and other not uncommon maladies. In a word, if properly used, vinegar is fruit and plant acid of inestimable value, and no more need be said in its favor in this connection."

As appropriate here, we copy the following extract from an address of I. D. G. Nelson, President of the Indiana State Horticultural Society:

"WHY DOES VINEGAR SOMETIMES PUTREFY?

"Cider vinegar never does putrefy; the older it gets, the more body and the stronger it gets. But all vinegar manufactured from acids is composed, of course, almost entirely of water. It has neither body nor substance, and is therefore liable to putrefaction, which frequently occurs. As so large a portion of the manufactured vinegar is composed of water, and as some persons will use it, it becomes highly important that the water should be entirely pure. But what assurance have we that it is so. On the contrary may we not have serious apprehensions on the subject? Pure rain water, well filtered, is alone fit for the purpose; so vinegar authors and patent recipe venders say. But how often, let me ask, is it used in that form? Most, if not all of the chemical factories are located in large cities, hence we may reasonably infer that much of the water is very far from being pure rain water, much less filtered. And may we not also have good reason to suspect that at least a portion of the water used, if not absolutely filthy, as is alleged, contains organic matter that causes the vinegar, as it is called, to putrefy or become infested with "vinegar eels," and other "creeping things," rendering it as unfit to be taken upon the stomach as bacon infested with the *trichina.* Add to this the fact that those who would manufacture vinegar out of poisonous drugs would not be apt to be scrupulously particular about what other materials were used in its manufacture, and you may have some reason to fear that it may not be in all respects a healthful condiment or beverage.

"It is a well known fact to all grocers and dealers in vinegar, that the only vinegar that will stand the test of all degrees of temperature is cider vinegar. One of the largest grocers in our city informed me that they lost a number of barrels of '*acid*' vinegar, on one occasion, by the frost of a single night. It was bought for 'pure cider vinegar,' and so branded upon the heads of the barrels, but when it thawed out it was simply putrid water. I hear of several other wholesale and retail dealers who have suffered in a similar manner, in fact, it appears to be well understood among dealers as of a very common occurrence. It is proper to say, perhaps, that all vinegar manufactured from drugs, acids, and other foreign substances, although becoming flat and insipid by freezing and thawing, will not, if kept in a cool cellar, always become at once putrid. Good cider vinegar will stand any extreme of heat or cold. I care not how much or how often it is frozen, it will never change its character into anything else.

"HOW TO KNOW PURE CIDER VINEGAR.

"If tests of taste fail, its *aroma* will not. A peculiarly rich and agreeable aromatic odor is always observable in all rich, pure cider vinegar when drawn from the cask. To imitate this fragrance, so pleasant to the smell, (hence so desirable to cover up the frauds of poisonous compounds) a few drops of fusil oil is added to give it odor, and burnt sugar and other substances to give it color; thus every device that ingenuity can suggest by calling in the aid of chemistry, is resorted to, to make 'pure cider vinegar,' out of anything and everything else but cider.

"The fact that all acids manufactured are palmed off as cider vinegar ought to be sufficient to satisfy the most stupid that nothing but the juice of the apple was ever intended or should be used to any considerable extent for vinegar, since it is the only fluid that will of itself, and without the aid of artificial means, make an acid that is agreeable to the smell, grateful to the taste, and healthful to the system, and which, at the same time, defies the skill of chemical science to successfully imitate. This aroma is produced from a sweet smelling ether, present in all apples, but far more abundant in some than in other varieties. So perceptible is the fragrant oil in the skin of the Northern Spy, Rambo, and many other sorts, that the opening of a single barrel will scent the whole house in a few seconds. It is this peculiar quality that is so charmingly brought out in the acetous fermentation when undergoing the chemical change from cider into vinegar."

Mr. Nelson does not inform us how many bushels of apples are required to make a barrel of cider, nor does he say what the apples are worth per bushel, in cider, at forty cents, or any other given price per gallon; but it is evident that the manufacture of pure cider vinegar is not a losing business, even with apples at one dollar per bushel. Then, again, the refuse sound apples, that is, those that from want of color, or some deformity, are not saleable, are as desirable for cider as the best samples. The process of making cider is quite too well known to demand any explanations, nor are we competent to give them, but only enjoin cleanliness in all matters connected with its manufacture. No rotten or unsound apples should be used; the fruit should go to the mill as clean as to the table, and the juice should come from the press as clean as it came from the apples.

There is yet another view in which this question is highly susceptible of, and should receive more general attention. We allude to the manufacture of cider as a beverage; pure, clean, and properly handled, it contains nothing injurious, but is a health promoting tonic, and should be found in every farmer's cellar by the barrel. Intemperance is not so much the result of one's habit of drinking, as the result of what is drank. Now, if *pure cider*, or wine, or both, can be made sufficiently abundant to be afforded at five to ten cents per glass, nine-tenths of those moderate drinkers who now take whisky at fifteen to twenty cents per glass, would choose the former, for either the reason of getting a pure article for less money, or to get a better one. There is no denying the fact that the great masses of the people will indulge in some stimulating beverage; and, every time the law-makers have tampered with the question, the number of tipplers has been increased. There is a large class who are indifferent as to strong drink, and every time the law commands them "to touch not, taste not," from that moment they are determined to share the highest liberty, and plunge headlong into intemperance; therefore, knowing the history of the past, and knowing that humanity now are much as they were at the creation, the reasonable application of past legislation and experience is that the best means to encourage "speed to temperance" is to supply abundance of cheap, pure cider and wine. This will effectually abate the use of these vile compounds, and a reasonable use of the former will conduce to our health and happiness, besides affording profitable employment to the cultivators of the soil everywhere.

PEARS.

The cultivation of pears has, of late, been attended with success, in a few localities unprecedented in any former experiences. The trees have not been injured by the severe cold of winter, as was the case in 1857–8. These successes, however, have mostly been confined to low standard trees that had been pruned as dwarfs, and received good attention. There can no longer be any doubt as to their entire success in Indiana, and their cultivation near the large cities, where the fruit can be properly ripened by the grower, and offered in market on the day of their perfection, must prove a first-class investment. The city of Indianapolis has been abundantly supplied during the past year with this luscious fruit, and it has commanded highly remunerative prices, being sold at six to ten dollars per barrel. Judging from the good varieties exposed for sale at the fruit stands, the Tyson, Belle Lucrative, Bartlett, Louise Bonne D' Jersey, Stevens' Genesee, Duches D' Angouleme, Sheldon, and Buffum, must be among the most productive. A new feature in this line is the sale of California pears, brought hither over the Pacific Railroad. Of these we were first treated to Bartlett, Duches D' Angouleme, Vicar of Winkfield, Easter Beurre, Napoleon, and, at this writing, one may be feasted on these two latter at the fruit store of Stout Brothers, at thirty cents each. These have all been of enormous size, fully double that of our best grown specimens, but from the high price, or some other cause, we could but think them very deficient in flavor.

PLUMS.

The cultivation of this valuable fruit, owing to the depredations of the *curculio*, has been nearly abandoned, but we have been rejoiced of late to find them succeeding well in a few localities. The *curculio* does not seem so abundant, or at least his mischief is not so prevalent as heretofore. We have observed some fine crops during 1868 and 1869, mostly on a few trees in the city, or where the trees had been jarred, and the *curculios* caught on blankets and thus destroyed. True, it is much labor, but there is no doubt of its entire success, and if one can by this means secure a crop of plums, his reward is ample for the attention so bestowed.

I have endeavored by these lines, in a general way, to throw a little light and encouragement toward a better understanding of fruit culture. The article does not suit the writer, but may do some good, and with this hope permit its publication.

INDIANAPOLIS, IND., Dec. 6, 1869.

LAWS

ENACTED BY THE

INDIANA STATE LEGISLATURE,

FOR THE

ENCOURAGEMENT OF AGRICULTURE.

AN ACT for the encouragement of agriculture. Approved February 14, 1851.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That whenever thirty or more persons residents of any county or district, embracing two counties of this State, shall organize themselves into a society for the improvement of agriculture within said county or district, and shall have adopted a Constitution and By-Laws agreeably to the rules and regulations to be furnished by the Indiana State Board of Agriculture, hereinafter created, and shall have appointed the usual and proper officers; and when said society shall have raised and paid to their Treasurer, by voluntary subscription, or by fees imposed upon its members, any sum of money not less than fifty dollars; and whenever the President of said society shall certify to the respective County Auditors the amount thus paid, *attested by the oath or affirmation of the Treasurer*, *before a Magistrate*, it shall be the duty of said County Auditors embraced within the district in which such society shall be organized to draw an order on the Treasurer of his respective county in favor of the President and Treasurer of said society for whatever amount of funds there shall have been received during the previous year for all licenses issued to persons exhibiting menageries, circuses, or theatrical performances, or other shows: *Provided* said order shall not exceed the amount raised and paid in by said society by voluntary subscription or fees, and it shall be the duty of the Treasurer of said county to pay the same.

SEC. 2. That it shall be the duty of the several county or district societies which may be formed under the provisions of the preceding section during the continuance of this act, annually to offer and award premiums for the improvement of soils, tillage, crops, manures; also improvements in stock, articles of domestic industry, and such other articles, productions, and improvements, as they may deem proper, and may perform all such acts as they may deem best calculated to promote the agricultural and household manufacturing interests of the district and of the State. And it shall also be their duty so to regulate the amount of premiums, and the different grades of the same, as that it shall be competent for small, as well as large farmers, to have an opportunity to compete therefor; and in making their awards special reference shall be had to the profits which may accrue, or be likely to accrue, from the improved mode of raising the crop, or of improving the soil, or of the fabrication of the article thus offered, with the intention that the premium shall be given for the *most economical mode of improvement, and all persons offering to compete for premiums on improved modes of tillage, or the production of any crop, or other articles, shall be required, before such premium is adjudged, to deliver to the Awarding Committee a full and correct statement of the process of such mode of tillage or production, and the expense and value of the same, with a view to showing accurately the profit derived, or expected to be derived, therefrom.*

SEC. 3. It shall be the duty of each county or district society to publish annually a list of the awards, and an abstract of the Treasurer's account, in a newspaper of the district, and to make a report of their proceedings during the year, and a synopsis of the awards for improvements in agriculture and household manufactures, together with an abstract of the several descriptions of those improvements, and also make a report of the condition of agriculture in their county or district, which report shall be made out in accordance with the rules and regulations of the Indiana State Board of Agriculture, and shall be forwarded to the State Board at their annual meeting in January of each year. *And no subsequent payment shall be made from the County Treasury unless a certificate is presented to the County Auditor from the Secretary of the State Board showing that such reports have been made.*

SEC. 4. That Joseph A. Wright of Marion county, Alexander C. Stevenson of Putnam county, Jeremiah McBride of Martin county, Roland Willard of Kosciusko county, Jacob R. Harris of Switzerland county, Henry L. Ellsworth of Tippecanoe county, John Ratliff of Morgan county, Joseph Orr of Laporte county, David P. Holloway of Wayne county, John B. Kelley of Warrick county, George W. Lane of Lawrence county, Samuel Emerson of Knox county, John McMahan of Washington county, Thomas W. Sweney of Allen county, be and they are hereby created a body corporate, with perpetual succession in the manner hereafter described under the name and style of the "Indiana State Board of Agriculture."

SEC. 5. It shall be the duty of said Board, or any five of them, to meet in the city of Indianapolis at such time as the Governor shall appoint, and shall organize by appointing a President, Secretary, and Treasurer, and such other officers as they may deem necessary; also determine by lot the time each member shall serve, so that the term of service of one half of the members shall expire annually on the day of the annual meeting in January; and the President shall have power to call meetings of the Board whenever he may deem it expedient.

SEC. 6. There shall be held in the city of Indianapolis, on the first Thursday after the first Monday in January, an annual meeting of the Indiana State Board of Agriculture together with the President of each county agricultural society, or other delegates therefrom, duly authorized, who shall, for the time being, be *ex officio* members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and conditions of the agricultural interests throughout the State. And at such annual meeting the several reports from the County Societies shall be delivered to the President of the Indiana State Board of Agriculture; and the said President and delegates shall, at this meeting, elect suitable persons to fill all vacancies in the Indiana State Board of Agriculture.

SEC. 7. And it shall be the duty of this Board to make an annual report to the General Assembly of the State, embracing the proceedings of the Board for the first year, and an abstract of the proceedings of the several County Agricultural Societies, as well as a general view of the condition of agriculture throughout the State, accompanied by such recommendations as they may deem interesting and useful.

SEC. 8. That the sum of one thousand dollars be, and the same is hereby, appropriated from the Treasury for the use of the Board, and an account of the expenditures of the Board shall be included in the annual report of the Board to the General Assembly.

SEC. 9. That the Indiana State Board of Agriculture shall have power to hold State fairs at such times and places as they may deem proper and expedient, and have the entire control of the same, fixing the amount of the various premiums offered, embracing every article of science and art, and proportions of them, as they may deem expedient and proper, calculated to advance the interests of the people of the State.

SEC. 10. The State Board of Agriculture shall certify to the Auditor of State the ordinary expenses of the Board, including the necessary personal expenses of the members in their attendance on not more than two meetings in any one year. The Auditor shall audit the same, and on his warrant the Treasurer of State shall pay the same out of the money appropriated by the eighth section.

SEC. 11. That all laws conflicting with the provisions of this act be, and the same are hereby, repealed, and this act shall be in force from and after its passage.

AN ACT for the encouragement of agriculture. Approved February 17, 1852.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That whenever thirty or more persons, residents of any county or district, embracing two counties of this State, shall organize themselves into a society for the improvement of agriculture within said county or district, and shall have adopted a constitution and by-laws agreeably to the rules and regulations to be furnished by the Indiana State Board of Agriculture, and shall have appointed the usual and proper officers, and when said society shall have raised and paid to their treasurer by voluntary subscription or by fees imposed upon its members, any sum of money not less than fifty dollars; and when the President of said society shall certify to the respective county auditors the amount thus paid, attested by the oath or affirmation of the treasurer before a magistrate, it shall be the duty of said county auditors, embraced within the district in which such society shall be organized, to draw an order on the treasurer of his respective county, in favor of the president and treasurer of said county, for whatever amount of funds there shall have been received during the previous year, for all licenses issued to persons exhibiting menageries, circuses, or theatrical performances, or other shows: *Provided*, said order shall not exceed the amount raised and paid in by said society by voluntary subscriptions or fees, and it shall be the duty of the treasurer of said county to pay the same.

SEC. 2. That it shall be the duty of the several county or district societies which may be formed under the provisions of the preceding section, during the continuance of this act, annually to offer and award premiums for the improvement of soils, tillage, manures, improvements in stock, articles of domestic industry, and such other articles, productions and improvements, as they may deem proper; and may perform all such acts as they may deem best calculated to promote agricultural and household manufacturing interests of the district and of the State; and it shall also be their duty so to regulate the amount of premiums, and the different grades of the same, as that it shall be competent for small as well as large farmers to have an opportunity to compete therefor; and in making their awards, special reference shall be had to the profits which may accrue, from the improved mode of raising the crop, or of improving the soil or stock, or of the fabrications of the articles thus offered, with the intention that the premiums shall be given for the most economical mode of improvement; and all persons offering to compete for premiums on improved modes of tillage, shall be required, before such premium is adjudged, to deliver to the awarding committee a full and correct statement of the process of such mode of tillage or production, and the expense and value of the same, with a view of showing accurately, the profits derived, or expected to be derived, therefrom.

Sec. 3. It shall be the duty of each county or district society to publish annually a list of the awards, and an abstract of the Treasurer's account, in a newspaper of the district, and to make a report of their proceedings during the year, and a synopsis of the awards for improvements in agriculture and household manufactures, together with an abstract of the several descriptions of those improvements, and also make a report of the condition of agriculture in their county or district, which report shall be made out in accordance with the rules and regulations of the Indiana State Board of Agriculture, and shall be forwarded to the State board at their annual meeting in January of each year, and no subsequent payment shall be made from the county treasury, unless a certificate is presented to the auditor from the Secretary of the State Board, showing that such reports have been made.

SEC. 4. The State board as at present constituted and organized, is hereby created a body corporate, with perpetual succession, in manner hereafter described, under the name and style of the "Indiana State Board of Agriculture."

SEC. 5. It shall be the duty of the State Board to appoint a President, Secretary, Treasurer and such other officers as they may deem necessary. The President shall have power to call meetings of the Board whenever he may deem it expedient.

SEC. 6. There shall be held in the city of Indianapolis, on the first Thursday after the first Monday in January, an annual meeting of the Indiana State Board of Agriculture, together with the President of each County Agricultural Society, or other delegate therefrom, duly authorized, who shall, for the time being, be *ex-officio* members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and condition of the agricultural interests throughout the State; and at such annual meeting, the several reports of the County Societies shall be delivered to the President of the Indiana State Board of Agriculture, and the said President and delegates shall at this meeting elect suitable persons to fill all vacancies in said Board: *Provided, however,* that said election shall not affect the members of the Board present, whose term shall not be considered to expire until the last day of the session.

SEC. 7. It shall be the duty of said Board to make an annual report to the General Assembly of the State of the receipts and expenditures of the board, together with such proceedings of the State Board and reports from county agricultural societies, as well as a general view of the condition of agriculture throughout the State, accompanied by such recommendations as they may deem interesting and useful.

SEC. 8. That the Indiana State Board of Agriculture shall have power to hold State fairs at such times and places as they may deem expedient, and having the entire control of the same, fixing the amount of the various premiums offered, embracing every article of science and art, or such portions of them as they may deem expedient and proper, calculated to advance the interests of the people of the State. They may employ assistants, receive contributions, donations, etc., and unite with a county or district society for the purpose of defraying the expenses of said State fairs.

Sec. 9. The State Board of Agriculture shall certify to the Auditor of State the ordinary expenses of the Board proper, including the necessary personal expenses of their attendance on not more than two meetings in any one year. The Auditor shall audit the same, and on his warrant the Treasurer of State shall pay the same out of any money appropriated for agricultural purposes.

Sec. 10. All laws conflicting with the provisions of this act be and the same are hereby repealed.

In the specific appropriation bill for 1852 the following allowance was made:

That the sum of two thousand dollars be appropriated for the use of the State Board of Agriculture for the year 1852, to be receipted for by the president of the board.

A JOINT RESOLUTION on the subject of an agricultural bureau at Washington City. Approved March 2, 1852.

Whereas, The interest of agriculture requires that an Agricultural Bureau should be established by the general government for the purpose of disseminating useful knowledge relating to agricultural pursuits, establishing an interchange of seeds and plants, and analyzing the different soils and products of our country; and, WHEREAS, To carry into successful operation these great and common objects, qualifications are required very different from those essential to the proper management of other departments of our national government; therefore,

Be it resolved by the General Assembly of the State of Indiana, That our Senators and Representatives in Congress be, and they are, hereby requested to use their best exertions to have speedily established a Bureau of Agriculture, based upon an economical but efficient system, and separated from all matters not agricultural.

SEC. 2. That the Governor of the State be and is hereby requested to transmit copies of this joint resolution to each of our Senators and Representatives.

SPECIFIC APPROPRIATION. Approved March 5, 1858.

That the sum of two thousand dollars be appropriated for the use of the State Board of Agriculture, to be receipted for by the President of the State Board.

AN ACT for the better protection of religious meetings, agricultural fairs, and other lawful assemblages of the people. Approved March 8, 1869.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That if any person shall erect, keep, continue or maintain any booth, tent, wagon, huckster-shop, or other place for the sale of intoxicating liquors, cider, beer, or other drinks, or for the sale of any other article whatever, or shall keep or exhibit any gaming table, roulette, shuffle-board, faro bank, ninepin or tenpin alley, or billiard table, or any other gaming or wagering apparatus, whereby any money or article of value may be lost or won, or any person who may be the owner or proprietor of any real property who shall rent or permit the same to be occupied for any such purpose, within one mile of any collection of any inhabitants of this State, met together for worship or any agricultural fair or exhibition; or who shall in any way interrupt, molest or disturb such religious meeting or agricultural fair or exhibition, or any person present thereat, or going to or returning therefrom; or who shall molest or disturb any meeting of inhabitants of this State, met together for any lawful purpose, shall be fined in any sum not more than twenty-five dollars nor less than five dollars.

SEC. 2. The preceding section shall not be construed to include such persons as may carry on their regular business at their usual places of transacting the same. No persons who may own in fee simple the reality within one mile of the places named in section one of this act, who shall desire to carry on in his or their own person, the business of providing food for the persons or the stock of those attending the places above named, nor to such persons as may have the permission of those having charge of any such meeting or exhibition, to establish suitable places for the purpose of furnishing food for those attending the same, for horses, cattle, or other stock.

AN ACT authorizing the State Board of Agriculture to cause a geological reconnoisance of the State to be made, to make collections and analysis of specimens, and appropriating $5,000 therefor:

(As this survey has been made, we only deem it necessary to include the following section:)

SEC. 2. The Governor is hereby directed to select a convenient room in the capitol, or in any building that may be erected by the State, if a suitable one can be found, and if not, hire one suitable for the deposit and safe keeping of such minerals, soils, ores, fossils, maps, sketches, etc., as may be collected and made by direction of said Board, which room shall be placed under the control of said Board.

AN ACT authorizing County Agricultural Societies to purchase and hold real estate. Approved February 7, 1855.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That every county or district agricultural society, organized agreeable to the provisions of the act for the encouragement of agriculture, approved February 17, 1862, shall be a body corporate, with perpetual succession, and as such shall be empowered to purchase and hold real estate for the use of annual fairs and other exhibitions of said society, *Provided* that the amount of real estate so purchased and held shall not exceed twenty acres, and *provided also,* that said purchase shall be made at such place, and under such regulations as may be prescribed by the by-laws of such society.

LAWS REPEALED IN ACTS OF 1861.

AN ACT to amend the sixth section of an act entitled "An act for the encouragement of agriculture," approved February 17, 1852. [Approved March 11, 1861.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That the sixth section of an act entitled, "An act for the encouragement of agriculture," approved February 17th, 1852, which reads as follows: "There shall be held in the city of Indianapolis, on the first Thursday after the first Monday in January, an annual meeting of the Indiana State Board of Agriculture, together with the President of each County Agricultural Society, or other delegate therefrom, duly authorized, who shall, for the time being, be *ex officio* members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects, and conditions of the agricultural interests throughout the State, and at such annual meeting the several reports of the county societies shall be delivered to the President of the Indiana State Board of Agriculture, and the said President and Delegates shall, at this meeting, elect suitable persons to fill all vacancies in said Board: *Provided, however*, That said election shall not affect the members of the Board present, whose term shall not be considered to expire until the last day of said session," be and the same is hereby amended to read as follows:

SEC. 6. There shall be held in the city of Indianapolis, on the first Tuesday after the first Monday in January, an annual meeting of the Indiana State Board of Agriculture, together with the President of each county agricultural society, or other delegates therefrom, duly authorized, who shall, for the time being, be *ex officio* members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects, and conditions of the agricultural interests throughout the State: and at such annual meeting the several reports from the county societies shall be delivered to the President of the Indiana State Board of Agriculture. *Provided, however*, that said election shall not affect the members of the Board present, whose term shall not be considered to expire until the last day of the session.

AN ACT to amend an act, entitled "an act authorizing county agricultural societies to purchase real estate," approved February 7, 1855.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That section one of an act entitled "an act authorizing county agricultural societies to purchase and hold real estate," approved February 7, 1855, which reads as follows, to-wit: "*Be it enacted by the General Assembly of the State of Indiana*, that every county or district agricultural society, organized agreeable to the provisions of an act for the encouragement of agriculture, approved February 17, 1852, shall be a body corporate, with perpetual succession, and as such shall be empowered to hold real estate for the use of the annual fairs and other exhibitions of said society: *Provided*, that the amount of real estate so purchased and held shall not exceed twenty acres: *And provided, also*, that said purchase shall be made at such place, and under such regulations as may be prescribed by the by-laws of such society," be amended to read as follows:

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That every county or district agricultural society, organized agreeable to the provisions of an act for the encouragement of agriculture, approved February 17, 1852, shall be a body corporate, with perpetual succession, and such shall be empowered to purchase and hold real estate for the use of annual fairs and other exhibitions of said society: *Provided*, that the amount of real estate so purchased and held shall not exceed eighty acres: *And provided, also*, that such purchase shall be made at such place, and under such regulations as may be prescribed, by the by-laws of said society.

SEC. 2. That all purchases of real estate hereinbefore made by any agricultural societies, organized in pursuance of the first section of the act of 1855, authorizing agricultural societies to purchase and hold real estate, are hereby legalized and confirmed: *Provided*, the number of acres so purchased and held does not exceed the number specified in this act.

SEC. 3. It is hereby declared that an emergency exists for the immediate taking effect of this act; it shall, therefore, take effect from and after its passage and publication in the *Indianapolis Daily Journal* and *Daily State Sentinel*.*

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*NOTE.—Published in Daily Journal March 22, 1861 and Daily Sentinel March 23, 1861.

AN ACT to amend an act, entitled "an act authorizing county agricultural societies to purchase and hold real estate," approved February 7, 1855, and to authorize such societies to issue capital stock. Approved March 11, 1861.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That section one of an act entitled "an act authorizing county agricultural societies to hold real estate," approved February 7, 1855, which reads as follows: "Section 1. *Be it enacted by the General Assembly of the State of Indiana*, that every county or district agricultural society, organized agreeably to the provisions of an act for the encouragement of agriculture, approved February 17, 1852, shall be a body corporate, with perpetual succession, and as such shall be empowered to purchase and hold real estate for the use of the annual fairs and other exhibitions of said society: *Provided*, that the amount of real estate so purchased and held shall not exceed twenty acres: *And provided, also*, that said purchase shall be made at such place, and under such regulations, as may be prescribed by the by-laws of such society," be amended to read as follows:

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That every county or district agricultural society, organized agreeable to the provisions of "an act for the encouragement of agriculture," approved February 17, 1852, shall be a body corporate, with perpetual succession, and as such shall be empowered to issue capital stock to an amount not exceeding ten thousand dollars, in shares of twenty-five dollars each, and to hold real estate by purchase, gift or devise, for the use of the annual fairs and exhibitions of such society: *Provided*, that the amount of real estate so purchased, or received by gift or devise, shall not exceed eighty acres: *And provided, also*, that said land, if purchased, shall be selected at such place, and under such regulations, as may be prescribed by the by-laws of such society.

SEC. 2. It shall be lawful for such agricultural society or corporation, by its board of trustees or directors, when so instructed by the shareholders, to sell any lands of which it is or may be possessed: *Provided*, that such sale shall only be for the purpose of re-investing the proceeds thereof in any other more eligible site, to be used for the same general objects of the society.

SEC. 3. Shares in the capital stock of such societies shall be transferable, for a consideration, from one person to another, subject to the provisions of the by-laws that said society may adopt.

SEC. 4. In all meetings of stockholders of such societies, held for the election of trustees or directors, or for the purpose of expressing their will, by vote, on any question whatever, any stockholder shall be entitled to cast one vote for each share he may own, and which he has paid for in full: *Provided, however*, that no stockholder shall be entitled to vote on more than ten shares.

SEC. 5. It is hereby declared that an emergency exists for the immediate taking effect of this act; and it shall therefore be in force from and after its publication in the Indiana State Sentinel and the Indianapolis Daily Journal.

SEC. 6. This act may be amended or repealed at any time in the discretion of the legislature.

AN ACT for the encouragement of agriculture, and authorizing the Indiana State Board of Agriculture to purchase, hold and sell real estate; legalizing the purchase by said Board, of certain lands in Marion county; exempting the property of said Board from taxation; authorizing the County Treasurer of Marion County, and the Treasurer of State, to refund certain taxes; and making an annual appropriation for the use of said Board. Approved March 3, 1865.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That the Indiana State Board of Agriculture is empowered to purchase and hold real estate, for the purpose of holding State Fairs, and other uses of the Board, to an amount not exceeding eighty acres; and to sell any real estate it may hold for the purpose of re-investing the proceeds in other real estate for the same general objects.

Sec. 2. That the purchases of real estate made by said Board, A. D. 1860, of William A. Otis and others, consisting of thirty-six acres, of the north-west quarter of section thirty-six, township sixteen, range three east, in Marion county, are hereby ratified and confirmed; and the said Board is empowered to hold the same for the general objects of the Board: *Provided*, that nothing herein contained shall authorize said Board to hold more than eighty acres, as aforesaid.

Sec. 3. That the real and personal estate of said Board shall be exempt from taxation, and that the County Treasurer of Marion county is authorized and required to pay to said Board the amount of taxes assessed and collected upon said real estate for said county for the years 1862, 1863, and 1864; and that the Treasurer of State shall refund to said State Board of Agriculture the amount of State taxes collected upon said real estate for the years aforesaid.

Sec. 4. That the sum of fifteen hundred dollars annually is appropriated for the use of said Board, to be paid out of the State Treasury, upon the first day of April, yearly, and to be receipted for by the President of said Board.

Sec. 5. Whereas an emergency exists for the immediate taking effect of this act, therefore it shall take effect from and after its passage.

AN ACT to amend the first section of an act entitled "An act for the better protection of religious meetings, agricultural fairs, and other lawful assemblages of the people," approved March 3, 1859. The amendatory act approved November 30, 1865.

Section 1. *Be it enacted by the General Assembly of the State of Indiana*, That the first section of an act entitled "An act for the better protection of religious meetings, agricultural fairs, and other lawful assemblages of the people," approved March 3, 1859, which reads as follows, to-wit:

"SECTION 1. That if any person shall erect, bring, keep, continue, or maintain any booth, tent, wagon, huckster-shop or other place for the sale of intoxicating liquors, cider, beer, or other drinks, or for the sale of any other article whatever, or shall sell or give away any intoxicating liquors, cider, beer or other drinks, or any other article whatever, or shall keep or exhibit any gaming table, roulette, shuffle-board, faro bank, ninepin or tenpin alley, or billiard table, or any other gaming or wagering apparatus, whereby any money or article of value may be lost or won; or any person who may be the owner or proprietor of any real property who shall rent or permit the same to be occupied for any such purpose, within one mile of any collection of any inhabitants of this State met together for worship or any agricultural fair or exhibition, or who shall in any way interrupt, molest or disturb such religious meeting or agricultural exhibition, or any person present thereat, or going to or returning therefrom, or who shall molest or disturb any meeting of inhabitants of this State, met together for any lawful purpose, shall be fined in any sum not more than twenty-five dollars nor less than five dollars," be and the same is hereby amended to read as follows, to-wit:

SECTION 1. That if any person shall erect, bring, keep, continue or maintain any booth, tent, wagon, huckster-shop, or other place for the sale of intoxicating liquors, cider, beer or other drinks, or for the sale of any other article whatever, or shall sell or give away intoxicating liquors, cider, beer or other drinks, or any other article whatever, or shall keep or exhibit any gaming table, roulette, shuffle-board, faro bank, ninepin or tenpin alley or billiard table, or any other gaming or wagering apparatus whereby any money or article of value can be lost or won; or any person who may be the owner or proprietor of any real property, or who shall rent or permit the same to be used for any such purpose, within one mile of any collection of any inhabitants of this State met together for worship or any agricultural fair or exhibition, or who shall, by any loud and unnecessary hollowing, or by any threatening, abusive, profane or obscene language or violent actions, or by any other rude behavior, interrupt, molest or disturb such religious meeting or agricultural fair or exhibition, or any person present thereat, or going to or returning therefrom, or who shall in like manner molest or disturb any meeting of the inhabitants of this State met together for any lawful purpose, shall be fined in any sum not more than twenty-five dollars nor less than five dollars.

AN ACT to amend an act entitled "An act approved March 11, 1861, being to amend an act entitled 'An act authorizing county agricultural societies to purchase and hold real estate,' approved February 7, 1855, and to authorize such societies to issue capitol stock and to confirm and ratify all purchases of real estate made by any agricultural and mechanical society, under their by-laws, not exceeding eighty acres of land, and to extend the benefits of said act to horticultural societies." Approved February 20, 1867.

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That section one of an act entitled "An act to amend an act authorizing county agricultural societies to hold real estate, approved February 7, 1855, and authorizing such societies to issue capital stock," approved March 11, 1861, which reads as follows, to-wit:

"SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That every county or district agricultural society organized agreeable to the provisions of an act for the encouragement of agriculture, approved February 16, 1852, shall be a body corporate, with perpetual succession, and as such shall be empowered to issue capital stock to an amount not exceeding ten thousand dollars, in shares of twenty-five dollars each, and to hold real estate by purchase, gift or devise, for the use of the annual fairs and exhibitions of such society: *Provided*, That the amount of real estate so purchased or received by gift or devise shall not exceed eighty acres: *And provided, also*, That said land, if purchased, shall be selected at such place and under such regulations as may be prescribed by the by-laws of such society," be amended to read as follows:

Sec. 1. That every county or district agricultural society, and every agricultural and mechanical society, and horticultural society, shall be a body corporate with perpetual succession, and as such shall be authorized and empowered to issue capital stock to an amount not exceeding ten thousand dollars, in shares of not exceeding twenty-five dollars each, and to hold real estate, by purchase, gift, or devise, not exceeding eighty acres.

Sec. 2. All purchases of real estate heretofore made by any such society, for the use of the annual fairs thereon, not exceeding eighty acres, shall be ratified and confirmed, and all deeds executed conveying lands to any such society, and all mortgages made by any society to secure the purchase money, shall be deemed valid and binding, on all parties thereto, in law and equity.

Sec. 3. It is hereby declared that an emergency exists for the immediate taking effect of this act, and it shall, therefore, be in full force and effect from and after it passage.

AN ACT to prevent the spread of disease among sheep. [Approved March 9, 1867.]

Section 1. *Be it enacted by the General Assembly of the State of Indiana*, That any person being the owner of sheep, or having the same in charge, who shall turn out, or suffer any sheep having any contageous disease, knowing the same to be diseased, to run at large upon any common, highway, or uninclosed ground, or who shall sell any such sheep, knowing the same to be diseased, without fully disclosing the fact to the purchaser, shall be deemed guilty of a misdemeanor, and be punished by a fine of not less than two nor more than twenty-five dollars for each diseased sheep, to be recovered as other penalties for like offenses.

AN ACT to provide for the protection of wild game, and defining the time in which the same may be taken or killed, and declaring the penalty for the violation of this act, repealing all laws inconsistent herewith, and declaring an emergency. [Approved March 11, 1867.]

SECTION 1. ***Be it enacted by the General Assembly of the State of Indiana,*** That it shall be unlawful to shoot, trap, or kill, in any manner, deer, buck, doe or fawn, within this State, between the 1st day of January and the 1st day of October in each year, and for each deer, buck, doe, or fawn so shot, trapped, or killed in any manner, the person or persons so offending shall, on conviction thereof, be fined in the sum of ten dollars.

SEC. 2. That it shall be unlawful to shoot or trap quails or pheasants from the 1st day of February to the 1st day of October in each year, and it shall be unlawful to net quails at any time. Any person or persons violating the provisions of this section shall, upon conviction thereof, be fined in the sum of two dollars for each quail or pheasant so shot, trapped, or netted.

SEC. 3. That it shall be unlawful to shoot or trap prairie hens or chickens between the 1st day of February and the 15th day of August in each year, and it shall be unlawful to net prairie chickens at any time, and any person or persons violating the provisions of this section shall, upon conviction thereof, be fined the sum of two dollars for each prairie hen or chicken so shot, trapped, or netted: *Provided,* That nothing herein contained shall be so construed as to authorize any person to enter upon the farm or premises of another, without permission of the owner thereof, where stock are grazed or herded, for the purpose of shooting game.

SEC. 4. That it shall be unlawful for any agent or officer of any express company, or railroad company, or any other person or persons, to receive or transport any game, whether deer, quails, pheasants, or prairie chickens, which shall have been killed, taken or captured in violation of any of the provisions of this act, and any agent, officer, or other person so offending shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined in the sum of ten dollars for each deer, buck, doe, or fawn so received or transported, and the sum of two dollars for each quail, pheasant, or prairie chicken so received or transported.

SEC. 5. All acts and parts of acts in conflict with any of the provisions of this act are hereby repealed.

SEC. 6. It is hereby declared that an emergency exists requiring the immediate taking effect of this act, and that, therefore, this act shall be in force from and after its passage.

AN ACT accepting certain donations from John Purdue and others, and locating and naming the college contemplated by the act of Congress, approved July 2, 1862, providing for its organization and management, adding a member to the Trustees of the Indiana Agricultural College, and changing the corporate name of said Trustees, and declaring an emergency. [Approved May 6, 1869.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That the donations offered by John Purdue, as set forth and communicated to the present General Assembly in the message of the Governor, on the 16th day of April, 1869, and the donations offered by the county of Tippecanoe, and the Trustees of the Battle Ground Institute, and the Trustees of the Battle Ground Institute of the Methodist Episcopal Church, as set forth and communicated to the General Assembly at its last session, in the message of the Governor of the 27th day of January, 1860, be, and the same are hereby, accepted by the State of Indiana.

SEC. 2. The college contemplated and provided for by the act of Congress, approved July 2d, 1862, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," is hereby located in Tippecanoe county, at such point as may be determined before the 1st day of January, 1870, by a majority vote of the Trustees of the Indiana Agricultural College; and the faith of the State is hereby pledged that the location so made shall be permanent.

SEC. 3. In consideration of the said donation by John Purdue, amounting to one hundred and fifty thousand dollars, and of the further donation of one hundred acres of land, appurtenant to the institution, and on condition that the same be made effectual, the said institution, from and after the date of its location, as aforesaid, shall have the name and style of "Purdue University," and the faith of the State is hereby pledged that said name and style shall be the permanent designation of said institution, without addition thereto or modification thereof.

SEC. 4. From and after the date of the location, made as aforesaid, the corporate name of the Trustees of the Indiana Agricultural College shall be "The Trustees of Purdue University," and they shall take in charge, have, hold, possess and manage all and singular the property and moneys comprehended in said donations, as also the fund derived from the sale of the land scrip donated under said act of Congress, and the increase thereof, and all moneys or other property which may hereafter, at any time, be donated to and for the use of said institution. They shall also have power to organize said University in conformity with the purposes set forth in said act of Congress, holding their meetings at such times and places as they may agree on, and a majority of their number constituting a quorum. They shall provide a seal, have power to elect all professors and teachers, removable at their pleasure; fix and regulate compensations; do all acts necessary and expedient to put and keep said University in operation, and make all bylaws, rules and regulations required or proper to conduct and manage the same.

SEC. 5. In further consideration of said donation, John Purdue shall, from and after the taking effect of this act, be added as a member to said Trustees of the Indiana Agricultural College, and he shall also be a member of said Trustees of Purdue University. Should he, at any time, cease to be such member, he shall be continued as an advisory member of said Trustees, and he shall, during his lifetime, have visitorial power for the purpose of inspecting the property, real and personal, of said University, recommending to the Trustees such measures as he may deem necessary for the good of the University, and investigating the financial concerns of the corporation. And he is authorized to make report of his examination, inspection and inquiries to the General Assembly at any session thereof.

SEC. 6. This act shall be subject to future amendment or repeal, except so far as it provides for the acceptance of donations, the location of the college, and the name and style thereof, and the rights and privileges conferred upon John Purdue.

SEC. 7. An emergency existing for the immediate taking effect of this act, the same shall be in force from and after its passage.

AN ACT providing for a geological survey, and for the collection and preservation of a Geological and Mineralogical Cabinet of the Natural History of this State, and creating the office of State Geologist, defining his duties, fixing his salary, and appropriating a sufficient amount of money to defray the necessary expenses of said survey, and for the collection and preservation of said cabinet. [Approved March 5, 1869.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That a department of geology and natural science is hereby established in connection with and under the control and direction of the Indiana State Board of Agriculture, for the collection and dissemination of information in relation to geological and other scientific investigations, to be made, as hereinafter provided, for the promotion of agriculture, mining, the arts and manufactures.

SEC. 2. *And be it further enacted,* That the Governor is hereby authorized to appoint a suitable person as State Geologist, to take charge of said department, and said Geologist shall hold his office for a term of two years, and until his successor shall be appointed as aforesaid, with an annual compensation of $1,800.00, to be paid in quarterly payments, and in addition to his salary, said State Geologist shall be paid also for the necessary traveling expenses incurred while engaged in prosecuting the field surveys, and for the chemical re-agents used in the analytical work.

SEC. 3. *And be it further enacted,* That said State Geologist shall have a thorough practical knowledge of geology and analytical chemistry, and shall establish his office at Indianapolis, in the State of Indiana, in a room or rooms furnished to him free of charge by the Indiana State Board of Agriculture, and he shall be required also to supply himself, free of cost to the State, with all the apparatus necessary to fit up an analytical laboratory, adapted to making chemical analyses of soils, ores, metals, mineral-waters or any other substances that may be thought of value or of general interest to the citizens of the State.

SEC. 4. *And be it further enacted,* That said State

Geologist shall, from time to time, make a survey of a portion of the State, in order to be able to complete a thorough geological survey of the whole State, as soon as consistent with his other duties as herein defined, and it shall be his duty also, to collect, properly label, and arrange in the agricultural rooms, specimens of the ores, coals, building stones, clays, soils, and organic remains; quadrupeds, birds, reptiles, fishes, crustacea, molusca, insects, and all other objects of natural history peculiar to the State, and as far as practicable, of other States and countries also.

Sec. 5. *And be it further enacted*, That the State Geologist shall also be required to make annual reports to the Indiana State Board of Agriculture, embracing the full results of his labors for each year; which reports shall be published along with the proceedings of the said State Board of Agriculture.

Sec. 6. *And be it further enacted*, That in order to carry the provisions of this act into effect, the sum of $5,000.00 be, and the same is hereby annually appropriated out of any funds in the Treasury not otherwise appropriated, and placed in charge of the Indiana State Board of Agriculture, for their disbursement in accordance with the provisions herein made and provided for; and it shall be the duty of the State Geologist to file with the Secretary of the State Board of Agriculture, a detailed statement, accompanied with the proper vouchers, for all moneys expended by him in carrying out the provisions of this act.

Sec. 7. *And be it further enacted*, That there shall be printed and bound annually, in a separate volume, twenty-five hundred (2,500) copies of the report of the State Geologist; to be paid for as provided by law, for the printing, binding and distribution of the Laws and Journals.

Sec. 8. *And be it further enacted*, And it is hereby declared that an emergency exists requiring the immediate taking effect of this act, and the same is hereby declared to be in force from and after its passage.*

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* See special article on Agricultural College or Purdue University.

AN ACT to authorize the President of the State Board of Agriculture to fill vacancies in the office of Secretary, Treasurer, or Superintendent of the State Board of Agriculture, and declaring an emergency. [Approved May 8, 1869.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That whenever any vacancy in the office of Secretary, Treasurer, or Superintendent of the State Board of Agriculture shall occur by death, resignation, or otherwise, the same shall be filled by appointment by the President of said State Board of Agriculture, which appointee shall hold said office until some regular meeting of the said State Board of Agriculture.

SEC. 2. Whereas an emergency exists for the immediate taking effect of this act; therefore, this act shall be in force from and after its passage.

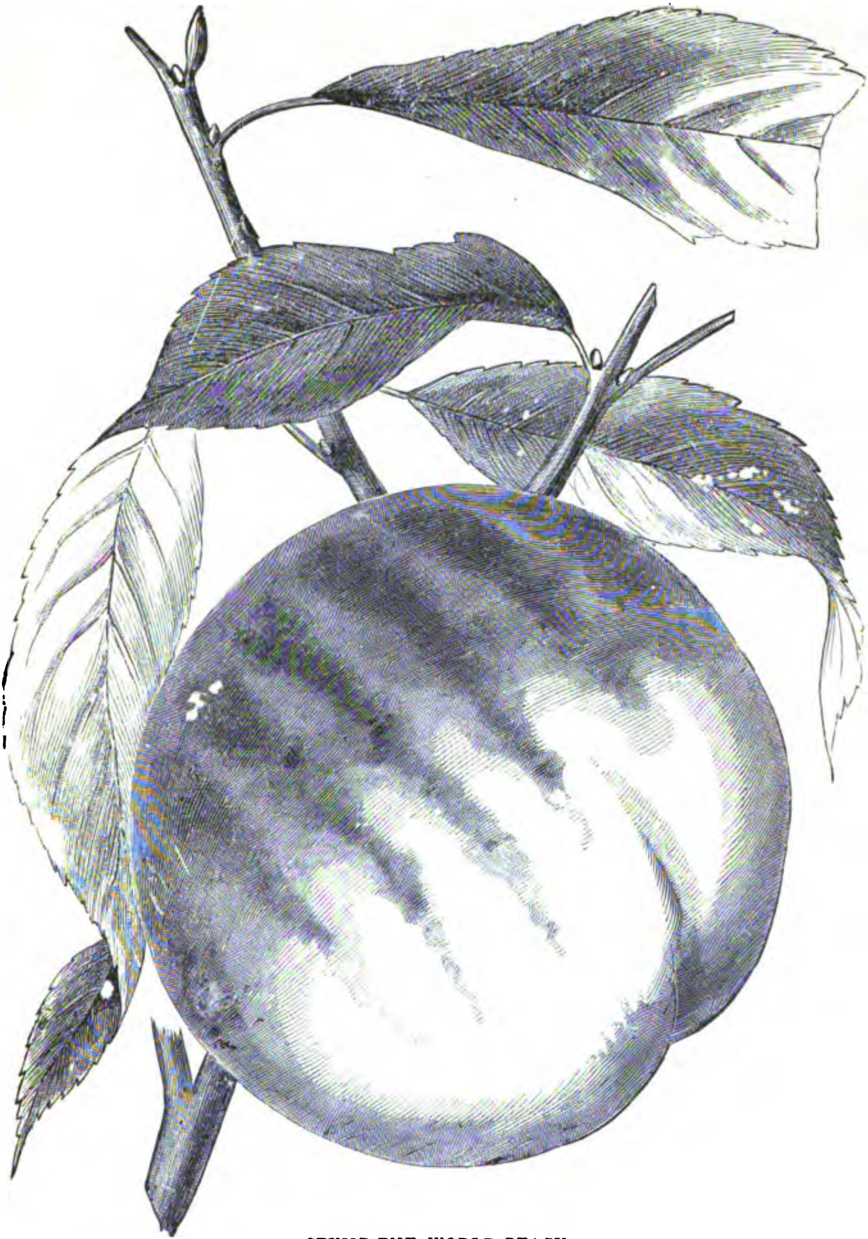
AN ORDINANCE.

AN ORDINANCE appropriating three thousand dollars to the Indiana State Board of Agriculture, specifying the amount and conditions of the within appropriation.

SECTION 1. *Be it ordained by the Common Council of the City of Indianapolis,* That the sum of three thousand dollars be, and the same is hereby appropriated, and made payable to the Treasurer of the Indiana State Board of Agriculture, upon a proper order, drawn by the Secretary of the said Board, properly certified by the President of said Board, for the purpose of assisting the said Board to fit up their State Fair Grounds.

SEC. 2 The said three thousand dollars herein appropriated is conditioned as follows, to-wit:

One thousand dollars to be paid on the first day of July, 1868, and one thousand dollars to be paid on the first day of July, 1869, and one thousand dollars to be paid on the first



STUMP THE WORLD PEACH.

day of January, 1870: *Provided*, The grounds owned by the said Board, and known as "Camp Morton," shall remain open to any organization of the citizens of Indianapolis, free at all times for celebrations, picnics, and other public occasions, except when the same shall be occupied by the Board of Agriculture, for agricultural purposes, under such reasonable rules as the Board of Agriculture may adopt.

The acceptance of the first one thousand dollars herein appropriated, and the receipt of the Treasurer of the Board therefor, shall be deemed a legal concurrence in the provisions of this ordinance.

Sec. 3. The City Clerk is hereby directed to draw his order upon the City Treasurer, and the Treasurer is directed to pay the same at the time and in the amounts hereinbefore named in section one of this ordinance.

Sec. 4. This ordinance may be repealed after the present year.

Sec. 5. This ordinance shall be in force and take effect from and after its passage.

Ordained and established this twelfth day of June, A. D. 1868.

DANIEL MACAULEY, Mayor.

Attest: D. M. Ransdell, City Clerk.

AGRICULTURAL COLLEGE.

EXTRACT FROM GOVERNOR BAKER'S MESSAGE TO THE GENERAL ASSEMBLY, JANUARY 8, 1869.

AGRICULTURE.

The report of the State Board of Agriculture for the years 1867 and 1868 will be laid before you. It is believed that this Board is doing much to promote the agricultural interests of the State, upon which all other interests so largely depend. At present there is no means of collecting and disseminating statistical information as to the agricultural, manufacturing and mechanical products of the State. If we desire to compete with other States in attracting capital and inviting immigration, some means must be used to make known what we have already accomplished, and the vast resources of our State which still remain to be developed. A statistical department might be connected with the State Board of Agriculture, or with the office of the Secretary of State, and it is believed that the small outlay which this would occasion would soon be repaid by the increase of population and capital which would ensue. Our large coal and iron interests are almost unknown beyond the borders of the State, and even our own people have no adequate idea of the extent of these interests. No State has greater opportunities and capabilities than our own for multiplying and diversifying her industrial productions. If we shall do our duty in advertising our resources so as to attract manufacturing capital to our borders, we will soon have a home market for our agricultural productions, instead of being compelled to pay high rates of transportation to carry them to distant markets. As a means to this end, a thorough and scientific geological survey of the State would seem to be a necessity. Such a survey has been repeatedly recommended by my predecessors, and I now repeat the recommendation, feeling assured that parsimony in this respect is the very reverse of true economy. It is also believed that a small annual expenditure, for the purpose of attracting immigration to the State, if judiciously disbursed, would soon be repaid by the increase of taxable persons and property which would result therefrom. By the act of March 5, 1859, the Governor was directed to select a convenient room in the Capitol, or in any other building that may be erected by the State, if a suitable one can be found, and if not, to hire one suitable for the deposit and safe-keeping of such minerals, soils, ores, fossils, maps, sketches, etc., as may be collected or made by the State Board of Agriculture, which room shall be placed under the control of said Board. At the commencement of the War, the room which had been assigned to the Board, under this act, was taken for military purposes, and the geological cabinet of the Board was deposited in the cellar of the State House, and their cases, in which specimens, etc., were kept, were taken for other purposes. In January, 1868, after the old Supreme Court room was vacated, I assigned that room to the State Board of Agriculture, and the Board requested me to have the room fitted up, and suitable cases supplied for their cabinet. I replied that there was no appropriation at my disposal which could be properly applied to that purpose, and requested the Board to procure the necessary cases, furniture and fixtures upon the assurance that I would recommend to the General Assembly that an appropriation be made to cover the necessary expenses thus incurred. The Board will inform the Financial Committees of the amount thus expended, and I trust that an appropriation will be made to reimburse the amount thus expended.

AGRICULTURAL COLLEGE.

On the 9th day of April, 1867, the land scrip which had been issued by the Secretary of the Interior to this State, under the act of Congress of July 2d, 1862, entitled, "an act donating lands to the several States and territories which may provide colleges for the benefit of agriculture and the mechanic arts," was disposed of by the Treasurer* of the Board of Trustees of the Indiana Agricultural College, under the direction of said Board, in pursuance of the requirements of the fifth section of the act of the General Assembly accepting the grant, approved March 6, 1865.

The Board of Trustees advertised for sealed proposals for the purchase of the scrip in such quantities or parcels as seemed most likely to secure competition. Quite a number of bids were received, and the scrip was sold in five several parcels to the highest bidders, and embraced three hundred and ninety thousand acres of land. The aggregate of all the sales was $212,238.50, or about fifty-four and a half cents for each acre of land represented by the scrip. The entire proceeds of the scrip was, as soon as practicable after the sale, invested in the five-twenty bonds of the United States. Since the making of this investment, interest has been collected by the Treasurer of the Board on these bonds to the amount of $20,722.40, which, with the exception of $1,748.90 cash in the hands of the Treasurer, has been invested in like manner.

The par value of the bonds held by the trust is $215,000. The market value at this time is estimated at $236,500, and if to this last named sum is added the cash in hands of the Treasurer, viz, $1.748.90, the entire fund is now of the value of $238,248.90. I respectfully submit a copy of the report of the Treasurer of the Board, to which you are referred for further information in relation to the sale of the scrip and the investment of the proceeds.

The original act of Congress by which the donation was made, requires any State accepting the benefits of its provisions, to provide at least one college such as is described in the act, within five years from the passage of the act, or in default thereof, the grant shall be forfeited, and the State shall be bound to pay the United States the proceeds of the land or scrip received.

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*Judge E. B. Martindale, Indianapolis, Indiana.

By a subsequent act of Congress, approved July 23d, 1866, the time within which the States accepting the grant were required to establish colleges was extended for five years from the last named date. The time limited by this extension will expire in 1871, and hence it is important that some definite action should be taken on the subject by the General Assembly.

By the terms of the grant, the fund is to remain undiminished forever, and the interest must be inviolably appropriated to the endowment, support and maintenance of at least one College, "where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislature may prescribe, in order to promote the liberality and practical education of the industrial classes in the several pursuits and professions of life."

By a subsequent section of the act of Congress, an exception is made which allows a sum, not exceeding ten per centum of the fund, to be expended in the purchase of land for sites or experimental farms, whenever authorized by the Legislature of the State; but this is coupled with an inhibition against the appropriation of any part of the fund to the purchase, erection or repair of any building or buildings.

To establish a College such as is described in the act of Congress, would involve such a draft upon the State Treasury as I could not recommend at this time, if it can be avoided.

Agricultural Colleges are as yet but experiments in this country, and it would be of great advantage to us if some arrangement could be made whereby action can be delayed until we can avail ourselves of the experience of other States now engaged in the establishment of such institutions. My own opinion is, that Congress should be memorialized to pass an act or joint resolution, permitting the State to apply the annual income of this fund to the support of common schools, until such time as the State is prepared, in justice to other claims upon her resources, to provide the College contemplated by the grant. Or if this is not deemed advisable, to permit the State to add the annual income of the fund to the principal, by investing it in government stocks until such time as the required College may be established. At former sessions of the General Assembly, three distinct plans of executing the trust were discussed. The first of these proposed making the College a branch or department of the State University. The second contemplated the establishment of a separate and independent Institution. The third suggested the division of the annual income of the fund equally among the State University and two, three or more of the denominational Colleges and Universities in the State, upon the condition that each of the Institutions so favored should provide one or more professorships devoted to instruction in such branches as the act of Congress requires.

The proposition last named would, to my mind, be so plain a departure from the spirit and intention of the grant, and would, on other grounds, be of such doubtful expediency, that I could not recommend its adoption. Should the General Assembly be of the same opinion, and also be averse to applying to Congress for permission to apply the income to the support of common schools, or to add it to the principal until such time as the State might be prepared to establish the College, the remaining choice would be between establishing a new institution and providing a College in connection with and as a branch of the State University.

The establishment of a new College, creditable to the State, would, I suppose, involve a draft upon the treasury of the State to an amount nearly if not quite equal to the amount of the fund received from the general government. But for this severe draft upon the treasury, and the doubt which exists whether such institutions can be made useful to any considerable extent, I should prefer the establishment of a new institution to the plan of attaching the College to the University.

In view, however, of the fact that we are now engaged in the payment of the State debt, and in view of the large and urgent demands of institutions already established, and, remembering that under existing circumstances and in anticipation of possible contingencies, the public burdens ought to be diminished rather than increased, my own opinion is that it would be unwise at this time to make such appropriations as the establishment of a new College would involve. I suppose that an agricultural and mechanical department of instruction, such as would save the grant from forfeiture, might be established in connection with the State University at a comparatively small expense to the treasury. If this is done the legislation should, in my judgment, be so shaped as to exclude the idea that the General Assembly might not, at some future time, if it should think proper to do so, make a different disposition of the fund. In other words, to prevent any pretext for a charge of bad faith, the right should be expressly reserved to provide a new and independent Agricultural College, and to apply the income of the fund to its support, if experience should, in the opinion of the General Assembly, render such action expedient or proper.

I can, however, see no reason to fear the success of an application to Congress for permission to apply the income of the fund to the support of the common schools; and experience has not yet proved that such an appropriation of the trust would not better tend "to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life" than the establishment of an Agricultural and Mechanical College."

The Board of Trustees consists of the following named gentlemen:

Gov. CONRAD BAKER, President, and member of the Board *ex officio*.
Hon. JOHN PURDUE, Lafayette.
Hon. LEWIS BURK, Wayne county.
Col. SMITH VAWTER, Jennings county.
Hon. ISAAC JENKINSON, Allen county.
HENRY TAYLOR, Esq., Tippecanoe county.
Capt. JOHN M. COMMONS, Acting Secretary, Indianapolis.
Judge E. B. MARTINDALE, Treasurer, Indianapolis.

The first meeting of the Board was held in Indianapolis, July 20, 1869. A select committee of residents of Tippecanoe county was appointed to select the site for the College, with instructions to locate the same within two and one-half miles of the Court House in Lafayette, and report the same to the Board of Trustees at their meeting to be held in Indianapolis, December 22, 1869.

At this meeting the selection of a site for the proposed College will, most probably, be made.

The fund, at this writing, stands as follows:

U. S. interest-bearing bonds, $215,000, worth...	$215,000
Cash on hand..................................	18,000
Purdue donation...............................	150,000
Donation by citizens of Tippecanoe county.....	100,000
Total...	$518,000

We are indebted for the above figures to Judge E. B. Martindale, Treasurer of the Board of Trustees, to whose, able management in the sale of the land scrip, and judicious investment of the proceeds thereof, this interest is largely indebted.

We are not advised as to the transactions of the Board, or their plans for the future, other than as above stated.

SEC'Y BOARD AGRICULTURE.

CONSTITUTION

OF THE

INDIANA STATE BOARD OF AGRICULTURE,

REVISED AND ADOPTED AT THE

JANUARY MEETING OF THE BOARD, 1860.

Article 1. The name and style of this society shall be "The Indiana State Board of Agriculture;" its objects, to promote and improve the condition of agriculture, horticulture, and the mechanic, manufacturing, and household arts.

Art. 2. There shall be held in the city of Indianapolis, at such time as may be prescribed by law, an annual meeting of the State Board of Agriculture, together with Presidents, or other delegates duly authorized, from each county, or such other agricultural society as may be authorized by law to send delegates, who shall, for the time being, be *ex-officio* members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and condition of the agricultural interests throughout the State; and at such annual meetings the several reports from county societies shall be delivered to the President of the State Board of Agriculture; and the said President and delegates shall, at this meeting, elect suitable persons to fill all vacancies in this Board: *Provided, however*, That said election shall not affect the members of the Board present, whose term shall not be considered to expire until the last day of the session.

Art. 3. The State Board elect shall meet immediately after the adjournment of the State Board, for the purpose of organization, and for the transaction of such other business as the wants and interests of the society may require; and hold such other meetings, from time to time, for making out premium lists, preparing for State fairs, and all other business necessary to the promotion of the objects of the society.

Art. 4. The State Board elect shall consist of sixteen members, chosen from the following districts:

1st District—Posey, Vanderburg, Gibson, Warrick and Spencer counties.

2d District—Pike, Dubois, Martin, Daviess, Knox and Sullivan counties.

3d District—Perry, Crawford, Harrison, Floyd and Washington counties.

4th District—Orange, Lawrence, Jackson, Monroe, Green, Brown and Scott counties.

5th District—Clarke, Jefferson, Switzerland, Jennings, Ohio and Ripley counties.

6th District—Dearborn, Franklin, Decatur, Bartholomew and Rush counties.

7th District—Johnson, Shelby, Morgan and Marion counties.

8th District—Owen, Clay, Vigo, Parke and Vermillion counties.

9th District—Putnam, Hendricks, Montgomery and Boone counties.

10th District—Fayette, Wayne, Union and Henry counties.

11th District—Randolph, Delaware, Madison, Hancock, Hamilton, Tipton and Jay counties.

12th District—Clinton, Tippecanoe, Warren, Benton and White counties.

13th District—Blackford, Grant, Huntington, Wells, Adams, Wabash and Howard counties.

14th District—Carroll, Cass, Miami, Fulton, Pulaski, Jasper, Porter and Lake counties.

15th District—Marshall, Laporte, St. Joseph, Starke and Elkhart counties.

16th District—Allen, Lagrange, Whitley, Dekalb, Noble, Steuben and Kosciusko counties.

Chosen for two years, one-half of whose terms expire every year, to-wit: those representing the first, second, third, fourth, seventh, fourteenth, fifteenth, and sixteenth, expire at the annual meeting of 1860, and those representing the fifth, sixth, eighth, ninth, tenth, eleventh, twelfth, and thirteenth districts, expire at the annual meeting to be held in January, 1861. To be chosen by ballot.

ART. 5. It shall be the duty of the President to preside at all meetings, conduct the business in an orderly and parliamentary manner, and officially sign all vouchers and drafts upon the Treasurer, (except for premiums,) and all other instruments requiring the same, and call special meetings in cases of emergency.

ART. 6. The State Board elect shall, at the annual meeting after the adjournment of the delegate meeting, proceed to elect one of their number President, who shall hold his office for the term of one year, and until his successor is elected and qualified, and one of their number for Vice-President, whose term shall be the same as President, who shall act, and, for the time being, have all the power, as President, whenever the President is absent from any regular meeting. They shall also elect some suitable person as Secretary, and some suitable person as Treasurer, and a General Superintendent, who shall hold their offices each for one year, unless removed for incompetency or neglect of duty. They shall also elect four of their number, who shall, with the President, constitute an Executive Committee, who shall have power to act in cases of emergency where loss would result by waiting till a regular meeting of the Board, but shall have no power whatever during the meeting of the Board.

ART. 7. It shall be the duty of the Treasurer to safely keep the funds belonging to the society, pay out the same on orders or drafts drawn by the Secretary, and report annually to the State Board, and as much oftener as he may be called upon by the Board, and shall give bond for the faithful performance of his duties.

ART. 8. It shall be the duty of the General Superintendent to take care of, and carefully keep, all property belonging to the society, have the care and control of the fair grounds during the recess; have the supervision and oversight of such improvements or additions as may be directed by the State Board, and, under their direction, procure materials, contract for labor, employ the necessary police, gatekeepers, and care-takers generally, and shall be, during the continuance of a fair, the Chief Marshal and head of the Police.

ART. 9. The Secretary shall keep a true record of the proceedings. He shall conduct all correspondence on behalf of the Society, except when otherwise directed by the President. He shall, by himself and assistants by him appointed, arrange the details of the entries, tickets, and enroll the names of committees and judges of the State Fair, receive and record the various reports of the awarding committees, fill out and deliver all diplomas and certificates. It shall be the duty of the Secretary to condense the County Agricultural Reports for each year into one volume, and superintend the publishing of the same. He shall audit and file all accounts against the Board; draw orders in favor of the proper persons, on the Treasurer for the amount; but orders shall not be drawn payable to order or bearer, but to the name of the party alone or his agent. He shall make an annual report, showing the amount of all orders upon the Treasury, and shall perform such other duties as the best interests of the Society may demand; but he is at all times subject to the direction and control of the State Board.

ART. 10. The Treasurer, Secretary, and Superintendent shall be allowed from time to time, such compensation for their services as may be judged equivalent to the duties performed, or services rendered, and shall be allowed such assistants as may be directed by the State Board, at a regular meeting thereof.

ART. 11. That no compensation shall be allowed to delegates attending the annual meeting of the State Board; nor shall the members or officers of the State Board elect be paid any sum of money, as compensation or otherwise, except by order of the Board elect.

ART. 12. The State Board may adjourn from time to time, or they may be called together by the Secretary, by order of the President, by a written notice to each member, enclosed by mail, and a notice of such meeting published in two or more newspapers of general circulation, in the city of Indianapolis; and all meetings so held by adjournment, or calls, shall be deemed regular and legal.

ART. 13. Any alteration or amendment to this Constitution may be made at the annual meeting of the State Board, two-thirds of all the members voting for such amendment.

ART. 14. The following standing committees shall be appointed by the President, to whom all matters of business coming up for reference under their particular heads, shall be referred, unless otherwise specially directed by the Board:

1—Finance and Claims.
2—Rules and Regulations.
3—Fair Grounds.
4—Unfinished Business.
5—Geological Survey—Executive Committee *ex officio*
6—Premium List.

The committees with the Executive Committee shall consist of three members for the transaction of the business of the Board elect. But at the January meeting two or four members shall be added to each from the Delegates present, as ordered by the Board, for the transaction of the business of that meeting.

BY-LAWS, ADOPTED JANUARY 1860.

SECTION 1. The salaries and compensation of the officers and members of the Indiana State Board of Agriculture shall be as follows, until otherwise directed:

SEC. 2. The members of the State Board proper shall be allowed two dollars per day for all the time necessarily employed in the discharge of their duties as such, including the time necessarily employed in going to and returning from the meetings of the Board; and five cents per mile on the most usually traveled route going to and returning from the meetings of the Board.

[Amended as follows: In January, 1864, per diem, five dollars; mileage, seven cents.]

ART. 3. Any member of the State Board, absenting himself from any regular meeting thereof, without first being excused by a vote of the Board, shall forfeit his per diem and mileage for that session.

ART. 4. The Executive Committee shall act as a Committee of Finance during the interim of meetings of the State Board, but shall have no power to transact the business of the Board at regular or called meetings, when a quorum of the Board are present.

SALARIES. PASSED FEBRUARY SESSION, 1857.

SEC. 2. The Secretary shall be allowed the sum of seven hundred dollars, and such compensation for assistants during the annual fair and meetings of the Board, as may be fixed by the Board.

[*Amendments:* January, 1860, increased to $1,200 00; May, 1861, reduced to $200 00; January 9, 1862, increased to $250 00; January 9, 1863, increased to $400 00; January, 1867, increased to $1,200 00, being the present salary. Extra allowances: 1867, $200 00.]

Sec. 3. The Treasurer shall be allowed the sum of two hundred dollars, and such number of assistants as may be necessary and directed by the Board.

[January, 1862, reduced to $100 00; January, 1864, increased to $200 00.]

Sec. 4. The Superintendent shall be allowed the sum of two hundred dollars, and such compensation for extra services as may seem to be right in the opinion of the Board, and such compensation and for such numbers of assistants as the Board may deem proper and direct.

[*Extra Allowances:* January 7, 1860, $180 00; January 7, 1861, $100 00; May 15, 1861, $90 00; 1868, $100 00. Increased, January, 1867, to $200 00.]

PRIZE ESSAY

ON THE

PLANTING AND CULTIVATION OF CORN.

BY DR. ALEXANDER C. STEVENSON.

This subject is generally better understood than practiced. Slothfulness prevents many, bad management many more, and a want of proper knowledge still a larger number, so that the corn crops of this country do not average much above one-half what they should. We shall be happy to stimulate the slothful, counsel bad management, and enlighten where knowledge is wanting.

DRAINING.

We do not propose to consider underdraining as properly belonging to the subject; but it is so commonly thus considered that we have noticed it only to make our excuse for not thus considering. And first, a very large proportion of the lands of the State are being cultivated without underdrains, and must be so cultivated for a long time to come, in consequence of the owners not being able to make so expensive an outlay, and tile is to be had only in a few localities yet. It is only the clay soils, with clay subsoils, that need underdrains. The large amount of bottom lands rarely need tiles. All those uplands where the sub-stratum is gravel require no underdraining. The same is generally true of those underlaid with limestone at but a few feet. We think it just, therefore, and of more general interest, while fully acknowledging the benefits of drainage on heavy soils, to treat the subject of corn cultivation as nature has presented us the soil, acknowledging the obligation of maintaining, as near as may be, the original fertility of the soil at least.

MAINTAINING THE FERTILITY OF THE SOIL.

It is of the greatest importance that rich lands should be permanently kept in this condition. It is far more difficult to restore worn-out lands than it is to maintain those that are already rich.

Wheat and corn being the great staples of this country we shall confine ourselves to these, knowing that the minor crops will be successful upon the same general plan. Can rich lands be cultivated and their fertility be maintained? We answer, they can. Can they be thus maintained without heavy expenditures for fertilizers? We answer in the affimative again. Can they be thus maintained and the fertilizing process made to yield a profit at the same time? We still answer affimatively. The inference is, then, if this be true, our lands should never become exhausted. It is clear that fertilizers of great value and in great quantities must cost large sums of money; but then it is contended that the large increase of products makes even this profitable. This may be so of particular localities, but not of all. The nearness to good markets, to large cities, where acres can be made to yield many hundreds, may justify it, but it will not do for wheat and corn in the West. The products of our barn-yards, and all other manurial products that may accumulate about the farm, should be carted to the fields; but they amount to but very little where the corn crop amounts to from fifty to five hundred acres. We repeat our answer, that the fertility of lands can be maintained and cultivation continued by the alternate cultivation of corn, wheat, and clover. A farm of fou hundred acres should be divided into four fields of one hundred acres each. Smaller or greater farms may be similarly divided. The fields should be numbered from one to four for convenience. Number one should be put in corn the first year, and in wheat in the fall, and sowed to clover in the spring. The second field should receive the same crops the second year. The third and fourth should be similarly cropped on the third and fourth years successively. The first field will now have yelded its owner one hundred acres of corn, and the same number of acres of wheat, and one hundred acres of clover pasture for two successive years. To maintain the fertility of the soil, we shall have, the fall after gathering the crop of corn, cut down, as a protection to the wheat, and as a manure for the land, three or four tons of cornstalks per acre. The following year, after cutting the wheat, we shall have a ton of stubble and the whole of the straw to be fed on the field the following winter, and, in addition, a large crop of young clover to be left on the ground without being pastured, so that, at the end of the second year, when we have harvested two crops of cereals, we have given to the land as manure a crop of cornstalks, a crop of straw and stubble, and one entire crop of young clover. On the fifteenth of May of the third year we have a luxuriant crop of young clover that may be grazed with hogs, cattle, horses or sheep, at a profit of from five to eight dollars an acre, or it may be rented readily for the same, which is an interest on fifty dollar land of from ten to sixteen per cent. But during these two years we add, for any reduction of fertility that may have been produced by the corn and wheat, many tons of clover in the shape of droppings from the animals pastured, beside many tons of roots that will rot after the plowing for corn again on the fifth year. The vegetable products here returned to the soil are as great at least as those removed, and, if so, there can be no deterioration; and my observations lead me to the same conclusions.

The answer to the second interrogatory, can this fertility be maintained without heavy expenditures for fertilizers, has been anticipated. The clover is worth from five to eight dollars an acre. The clover seed should be raised on the farm; but counting its value at twelve dollars a bushel, and eight acres to the bushel, would only make a cost of a dollar and a half per acre, or seventy-five cents an acre for two years, which would affect the profits but little.

Before passing to the next thing that we propose considering, we wish to say that we have not introduced the wheat crop for any beneficial purposes other than a means of getting the land profitably in clover.

As we have proposed to consider the cultivation of corn, as the lands of the country are naturally found it will be necessary to divide into two classes, viz.: dry lands and wet lands. The dry lands consist of river and creek bottoms, and the lands generally which rest upon gravel or limestone, and are very easily distinguished from the clay or wet lands, which are usually found to rest on hard pan or a clay formation almost impervious to water, and are never so good for the production of corn as the dry lands, yet, with proper management, they commonly yield fair crops.

PREPARATION OF THE LAND.

The field should be cleared of all loose or rotten stumps, chunks, briars, and sprouts. The fence corners should likewise be cleared in the same manner, that the team may turn easily. This being neatly done, the breaking should commence in the center of the field, so that it may be finished upon the outer border. This gives the field a slight elevation in the center, and enables surplus water to pass off more easily; but still more, it gives the field an even surface. Breaking by lands throws the field into ridges that are injurious in wet seasons, and the undue removal of soil from the middle of the lands. I noticed a field the present season that was thus damaged. It had been rented for many years, and had always been broken in this manner. The lands had been begun on the same side of the field, and had been laid off the same size, and finished at the same point, until the field lay in ridges of the exact size of the lands, the outer edges of the lands being six inches higher, and in many of the lands more, than in the centers; the consequence was that the corn in the center was much inferior to that on the borders of the lands, and it will be some trouble to get the surface of this field in proper shape.

To secure the planting, in perspective of large crops, it is necessary to commence breaking some weeks before planting. In this case the ground should lie a short time before planting, when it should be harrowed and rolled until the ground is thoroughly pulverized. Upon this, much of the success of the crop depends. The slothful may think this unnecessary labor. Bad management may so encumber with other duties that it cannot be done. If any should, by not understanding, deem it unnecessary, we would most earnestly impress the necessity of thorough pulverization before planting. If the breaking is just before planting, the harrow and roller may follow the plow immediately; and this is the better plan if the crops can thus be got in, as in early breaking the ground is too apt to bake, which is much against the rapid growth of the corn, and rendering the cultivation much more difficult, with the danger of an inferior crop.

There is quite a difference of opinion as to the proper depth of breaking; probably a medium of from five to eight inches is best. I had a tenant that was an excellent corn raiser, who broke his ground with a single horse, and probably not over three or four inches deep; and the very best that I have ever had never broke over five or six inches, but in both these cases they gave better after cultivation than was usual, both always giving, in addition to the plow, one or two good hoeings.

After the ground is thoroughly pulverized, it may be checked off into rows of four feet each way, and the dropping should be done in a cross direction to the last furrowing; by thus doing the hills may be made to stand evenly in the rows. This is of great importance in the after cultivation. If the hills are uneven it will be found impossible to plow out the weeds in and between the hills, and the crop becomes foul and injured, or the hoe must be used to remove them, which is tedious and expensive. Every one is apt to be in a hurry in corn planting, and so soon as the ground is furrowed one way, and the plowman commences checking or furrowing the other way, the dropping commences, in the most hurried manner, and one lad, or probably a girl, is required to drop after one plow, and the consequence is that the corn stands very uneven in the rows, rendering it impossible to plow well or close to the hills—a little thing causing much trouble and a considerable loss.

There is some difference of opinion as to the proper width of the rows. We have placed them at four feet. Many make the rows at three and a half feet, and some as narrow as three feet. Something, it is true, depends upon the kind of corn. The large tall corn, requires more space than the small, low varieties. For the corn of this country, which grows from eight to ten feet high, four feet is about the proper distance. This enables the sun to reach the ear and lower blades and stalk, giving tone and vigor to the whole plant, which is indispensable to perfect and large ears. Corn planted too close will be found with small stalks and ears, and in many cases the ear will be wanting, or imperfectly filled. In this connection it is important to determine the number of stalks to be left in a hill. This, too, may be varied by varieties of corn, but for the corn of this State, which is generally of the larger varieties, we would have three stalks to the hill. It is true, though, if I found a puny or sickly hill, on thin land, I should prefer but two. The reasons given for not crowding the rows too close apply with equal force in not over crowding the stalks in the hill. I examined a field lately, in which the stalks were from one to six, no care having been taken to thin The hills which had above three stalks had very poor ears, and in many none at all. A very rich soil will suffer somewhat less from the evils of over crowding than poorer land. Very much of the success of the corn crop depends upon having just the proper quantity upon the ground, no more and no less. Here it is proper that the mode of covering should be considered. There are several good modes of doing this. The most ancient, perhaps, is that of the hoe. The work with the hoe can be well done—no mode can excel it, but the objection to it is that it is too slow and costly. Another mode is to cover with a small shovel-plow. This has the advantage of speed, and it leaves the young corn upon a light ridge instead of a furrow, as with the hoe, which enables the first plowing to be performed better, and it is in better position to withstand wet weather soon after planting, which frequently is injurious. Still another mode is to cover with a drag. This drag consists of a frame about four feet square. Two parallel pieces of scantling, with four cross bars of the same size pinned well on the under side of the first named parallel pieces, is all that is necessary. Scantling of some heavy wood, as oak or ash, about four inches square, is best. A clevis is attached to the center of the first cross bar. This drag will cover, as fast as the horses will walk, one row at a time. This mode has one advantage, it leaves the surface of the field as level as would the roller. It also gives the surface a thorough cultivation; gives the corn a good start, free of weeds, and leaving the ground in the best possible condition for the first cultivation. We are inclined to favor this mode very much in all land that is in proper condition for planting. It is possible that these modes will all soon be displaced by the drill; but of these we do not think it necessary to speak, as their greatest advantage will probably be *speed alone.*

The depth of planting the seed is also of importance, and this will vary with the season. Early planting should not be so deep as that planted late, for the reason that the ground is more apt to be cold and wet, and the sun's rays will much more easily penetrate a shallow covering. Later, the ground is warmer and dryer, and needs a deeper covering to give moisture enough to produce germination. Wet seasons and dry ones need variation for the same reasons, and in the same manner; wet ones requiring but a shallow covering, whilst dry ones require a deep one. From one to four inches will do near it.

The time of planting has much to do in the success of the corn crop. In general terms the planting season may be said to continue from the first to the twentieth of May. The tenth of May is generally preferred. The season and insects vary the time of planting, often many days and sometimes weeks. Some fix the proper time for planting at the time the "dog-wood blossoms appear," others when the "oak leaves are as big as squirrel's ears." However this may be with dog-wood blossoms and oak leaves, we have little doubt that the growth of vegetation is a more certain guide as to necessary condition of the soil to germinate Indian corn, than the days of the month. The tenth of May does not always come at the same season. If corn is planted before the ground is possessed of sufficient warmth, the seed rots, and the work has to be done over at a disadvantage, and increased cost. Plant bottoms and sandy lands first, and your clay soils last. The cut worm makes it necessary to vary the time of planting. Corn may be planted so early as to be out of their reach by the time they are able to damage it, or it may be planted so late that they have disappeared. The first of May will be too soon for them to damage the corn, and the last week in May too late for them; but the safest rule is to see that they are gone, or become too sluggish to work. They are apt to be worse in clover sod, or timothy sod, or fresh broken pastures. In such lands as these, being our very best lands for corn, the crop will generally mature if planted the first of June.

The cultivation of the crop should commence at once after planting. There is no one error so damaging to the corn crop as the error of postponing the cultivation after planting, until the corn is large enough to be plowed with convenience, often some weeks. This gives the weeds a good start, not to be easily removed. The ground also bakes and can rarely be got in good tilth again, and here ends the prospect for a good crop. Fox-tail and weeds have possession of the hills. A hard cake of baked earth encircles them, beyond the reach of the plow; and this error of postponing the cultivation early is still committed by a very large number of our farmers, from year to year.

A few days after the corn is planted and before it is up, it may receive a harrowing with a two-horse harrow. This stirs and pulverizes the ground and tears up the starting weeds. This work can be done in half the time or less, than it could be plowed. Then, again, just so soon as the corn can be seen in the rows, start the harrow astride the rows with the front or middle tooth removed. The ground now will be found mellow, clear of weeds and every way in fine tilth and the corn in fine growing order. This corn will now require about one plowing a week until the tassels begin to shoot. This ends the cultivation.

The cultivation may run about in this manner—varied, however by time of planting: First harrowing about the 16th of May; second harrowing the 23d of May. First plowing the 31st of May; second plowing the 8th of June; third plowing the 16th of June; fourth plowing the 24th of June. The fifth plowing may or may not be necessary. This must be determined by the state of the corn and the condition of the ground. If the corn is backward and the ground disposed to produce weeds, plow the fifth time, and I have often known the sixth plowing to be of great service; but this is rarely the case where the early cultivation has been properly attended to.

The manner of plowing is of great consequence. A neighbor ruined a promising field of corn in one of our past dry seasons, by plowing very deep the last time. The roots being destroyed to a very great extent, never recovered; the consequence was, that the stalks suffered for want of nourishment, the leaves yellowed and there was no ears as a consequence of this single error; and what made the thing more apparent was, that in an adjoining field the owner, instead of plowing deep, used a light cultivator and merely stirred the surface, and a good crop was the result.

The first plowings, where the roots are but little extended, may be deep, but the latter ones, when they have greatly extended themselves and the stalk is making hourly demands for nutriment, merely stir the surface lightly to destroy weeds and keep the field in good tilth.

THE PLOW.

Formerly, the single shovel or a light bar-shear plow was the plow commonly used, and the work may be well done with either; but the double shovel has displaced them both and does the work as well and just one-third faster. Whilst three furrows to the row is required by the single shovel and bar-shear, two are only required by the double shovel. This is a large gain in the cultivation of corn. There are other plows in use that are still more speedy, but they have not yet been found adapted well to this locality and will not be here considered; but we cannot fail to recommend them to the careful consideration of our farmers—we allude to the sulky plows now being extensively introduced into the prairies west of us.

SEED CORN.

This is of vital importance in the successful cultivation of the corn crop. Everything else may be well and properly done, and yet, for the want of good seed, there is sure to be a failure.

Corn may be rendered unfit for seed by early frosts; by remaining in the field too long subject to alternate rains and freezing; by being placed in large bulks before thoroughly dry.

The best way to secure good seed, is to gather early selecting the best ears; store in a dry place and spread well, that it may thoroughly dry before early frosts commence. Corn thus saved will always grow, and grow well, for there is not only a difference in good and bad seed, in one growing and the other not growing at all, but there is a striking difference where both may grow, in one growing well and the other very feebly. It is not all corn that will grow, that is *good* seed corn.

WET LANDS.

What we mean by wet land is, our clay soils underlaid with hard pan, a substance impervious to water, or nearly so. The great difference between this soil and that of the dry lands is, only, that the water is retained upon it by the hard pan approaching the surface. I have often found this hard pan to underlay dry lands, but at a depth that the surface was not affected. The same hard pan is often found underneath gravel beds, where the soil above is of the dryest character.

The excessive moisture of these lands is removed in the spring by slow surface drainage and evaporation by the sun's rays.

The surface drainage may be much assisted by a few deep furrows in the low places, and then a patient waiting upon the sun to make it dry enough for the plow, which will be from one to two weeks later than the dry lands of the neighborhood, or of the same farm, probably. The length of time will be varied much by the season; still, for all tillage, they should be considered about two weeks further north.

Then, an earlier corn by two weeks must be cultivated and there will be little difficulty in raising fair crops upon all our wet lands. The great danger is, in breaking too wet and planting when there is still too much water in the ground, the evaporation of which keeps the ground so cold that the seed rots; or if it even should germinate, it will not grow, but becomes yellow and sickly. The true plan is, in securing an early corn and waiting for the ground to dry.

The condition of the ground just proper for the plow, is rather difficult to describe; yet any practical farmer knows it without difficulty. In being turned, however, it should crumble easily, resembling somewhat the slicing of a dry loaf of bread; when too wet, the furrow slice will resemble much a slice of green cheese.

In planting wet lands, the checks for planting should be very shallow or mere surface marks. This is necessary to meet wet weather that may follow planting. It is quite astonishing in wet seasons, what a slight elevation to the hill will do. In fields that the corn has been ruined by the wet, hills will be found on very slight elevations doing well, as where a tree had grown; and a whole row may often be found just where the furrows were thrown together at the beginning of two "lands," giving but a slight elevation. Thus, little things, apparently, in the cultivation of the crop, accomplish much.

OVER-CROPPING.

This is so common an error that we can not pass it in justice to this great interest without remark. There is no error that is more damaging to the corn crop than over-cropping. If too much is undertaken, a light crop is the sure result. Once in the weeds, and it is difficult to get out safely. The number of acres that can be properly cultivated to the hand depends much upon the character and condition of the land. What a hand will plow well once a week will be sufficient. If the fields are large, and the rows long, a little more can be plowed than when the fields are small, and much turning has to be done. A little more can be done in dry seasons than in wet ones; but as this can not often be foretold, it can not profit much only by keeping it in view as a contingency. There are fewer days lost by wet weather on the bottoms and other dry lands than on the heavy clay soils. The amount will probably vary from ten to fifteen acres, according to quality of land. One hand will safely plow ten acres of corn per week. At two acres per day, if there were no rainy days, he would plow twelve acres. At two and a half acres per day, just fifteen acres per week. But there are certain to be some rainy days; it is proper to provide for them. If you have unfavorable land, put in just ten acres. If your land is very good, from twelve to fifteen—remembering, always, that it is safest to have a little less than a little too much. A man can carry a light burden through, whilst one a few pounds above his strength must be left by the way.

Four feet to the row, and three stalks to the hill, of good corn, will give seventy-six bushels to the acre. Two stalks to the hill, rows of the same width, will give fifty bushels, if well cultivated, making no allowance for the increased size that the ears would attain by having a less number. Yet few obtain this amount, which might be had by all with proper cultivation. The average crop of corn in the State may be nearly doubled by proper cultivation. There are many hundreds of acres planted each year that for the want of proper culture do not produce more than twenty-five or thirty bushels to the acre. This is a great loss, not only to the cultivators, but to the country generally. But we are told that much of the land of the country has become so exhausted by long cultivation that it is impossible now to produce full crops. This should not be so, yet we must confess the fact, and in regard to this we will in conclusion say a few words. There is a well-established fact in regard to the soil of this country that we ask attention to. The soil from cellars, railroad cuts, and even from deep wells, is quite productive when exposed for a short time to the frosts of winter and the hot suns of summer. I have a fair example in view at this moment, in the excavations from a cellar made last summer. Upon this clay are to be seen fine stalks of red clover, orchard grass, black mustard, and smart-weed, nearly waist high. Let no one despair for the loss of surface soil; there is still an abundance of productive soil beneath. But to restore these lands, there must be no great outlay, nor loss of time, or the owner will go West to fresh fields. If a field, with all due care, has only produced twenty-five bushels of corn, the first week in September sow it in rye, and plow it in well. The first of December turn upon it a flock of good wethers to eat the crop, and by the first of February, they will be ready for market, and a "good thing" will be made of the corn and sheep. The young rye will have received the droppings of the sheep and the corn stalks to assist its growth when the sun begins to warm it in the spring, when it may be put down to clover or timothy. About the first of July, hogs may be turned upon the rye. Pasture two or three years, then put in corn, to be followed with rye and clover, fed off in the same way as before, and I will venture the improvement will be highly satisfactory, with fair profits each year.

We hope we shall not have entirely failed to instruct the uninitiated, or to have more fully impressed upon the attention of the experienced, important considerations in the production of this most valuable crop. The considerations presented are doubtless not new to many, yet how many fail with ample knowledge for the want of paying attention to small things. A single screw loose in any extensive machine, and there is a failure of the whole. So it is with the successful culture of the corn crop; a single mistake greatly damages. The loss of a few days at the critical time, bad preparation, plowing too wet, bad seed, etc., etc., are all very small things, but are each in themselves capable of producing damaging results.

PUTNAM CO., IND.

THE CULTURE OF CORN.

BY CHARLES McGREW,

In the year 1850, and while residing in Knox county, Illinois, being, to some extent, a practical farmer, made what I conceive to be some valuable discoveries in corn culture. I had noticed for many years that about the time corn was "laid by," as it is called, it was quite common for it to appear wilted, the blades being rolled up, as though it were suffering for the want of rain and moisture at the roots, the shoots would be small and the ears imperfectly developed. Especially was this the case in dry seasons. Having given this matter a great deal of close study and attention, I arrived at the conclusion that this was more the result of imperfect modes of preparing the ground, planting and cultivating, than of the dryness of the season; granting that its favorableness or unfavorableness would have much to do with the result. Like most of my neighboring farmers, I farmed it pretty much on the old style. In the spring I was in the habit of cutting down the corn stalks of the year previous, raking and burning them off clean. Then plowing with two horses, breaking up two or three acres per day and from four to six inches deep. This plowing was generally commenced as early as possible after the frost was out of the ground. If I had a hundred acres or more to put in corn, I generally broke up fifty acres or more before any planting was done, by which time the season would have been far enough advanced to insure sufficient warmth to sprout the corn. In the mean-while, my ground having been plowed while yet too wet, and having been long exposed to sun, wind and rain, had settled down, become very hard, with the weeds in full possession. Then I checked it off, planting it so that it might be plowed both ways, as was then, and still is, the prevailing custom. As soon as the corn was up enough to bear it, plowing was begun; the plow passing both ways, and as close to the hill as the safety of the corn would admit of. It could be plowed reasonably close to the hill going in the direction in which the seed-planter or dropper went. But the other way, the rows of hills would, of a necessity, be in such a zig-zag line, that to attempt to plow closely to any of the hills, would be to dig up about half of them; otherwise, a space must be left on one side or the other of the hill, where the weeds could have undisturbed possession. Plowing deep each way, cutting off the fibrous roots, which were reaching out after the moisture and mellow soil, the corn was left standing upon a hard pan, literally a *big clod.* What wonder that it should wilt and roll up its blades in July?

Now, to remedy these evils, I discover the following plan to be effectual:

In the first place as to stalk-ground. I allow the stalks to stand upon the ground until the season is so far advanced that planting may be safely commenced. I then procure a pole six inches in diameter and about twelve feet long. Take a two-inch augur and put holes through it about one foot apart, the holes being as near in a line as may be. In these I fasten the butt ends of crab apple or other branches. so as to make a brush harrow. Take two chains of equal length and fasten one at either end of the pole and joining them with a clevis to the double-tree. Draw it with two horses over the stalk-ground, going around the land in the direction in which it is to be plowed; thus literally combing the stalks out in that way.

Now, as to the mode of plowing:

I use a plow that is from three to five inches narrower than those in common use. I use three horses, breaking up the ground not less than ten inches in depth, turning all the stalks and other rubbish into the bottom of the furrow. Without allowing the plowed ground to lie more than twelve hours, the weather permitting, I take the before-mentioned pole and brush and go over it in the direction in which it was plowed, leveling it and pulverizing the clods. It is now ready for planting, being in better condition than at any other time, so soon after plowing there is sufficient moisture, even in a dry time, to obviate the necessity of deep planting. Should the season be wet, the stalks lying beneath the surface have the effect of draining off the excess of moisture.

It will also be seen that a great advantage is gained over the weeds, which have not been allowed a start, as is the case where the ground has been allowed to lie a long time after plowing and before planting. I use a planter drawn by two horses, planting two rows at a time, four feet apart, dropping one or two grains of corn every twelve inches; always going in the same direction in which the ground was plowed. As no cross marks are to be made, the planter can follow immediately after the plow, and the first planting will be ready for the cultivator by the time the planting is done, where any considerable number of acres have been planted by a small force of hands.

Now, as to cultivating:

The first thing I do is to roll the ground, when the corn is from four to six inches high, in order to settle it firmly about the roots of the corn, level it and mash the clods, if any there be. I next use a cultivator carrying four shovels, two of them passing on either side of the corn-row, at the same time. These shovels are diamond-shaped, six inches wide at the lower extremity and about three inches where they are fastened to the stock. This kind of shovel is preferred, because it may be passed close to the corn, cutting the weeds just beneath the surface of the ground, without danger of covering up or otherwise injuring the corn. The second and third time cultivating, leave off the small shovels and substitute larger ones. Let the surface be thoroughly stirred and pulverized and thrown well up about the roots of the corn, being careful not to plow too deep, so that the fibrous roots be not broken or disturbed. The great object to be gained by cultivating near the surface is the saving of the fibrous roots, all of which are necessary for the support of the corn during the dry season.

By way of experiment, I planted two pieces of ground in corn on the same day, the quality of the soil in either case being the same. One piece was planted in the ordinary way and cultivated four times; from it I gathered sixty-five bushels to the acre. The other was planted and tilled in the manner above described and from it was gathered one hundred and twenty-six bushels to the acre. The result of the experiment was reported at the county fair of Knox county, Illinois, by disinterested persons, and was recorded with the proceedings of the fair held in that county in the year 1851.

In the year 1861, in McLean county, Illinois, I produced an average per acre of corn, one hundred and thirteen bushels, while my neighbors, farming in the old style, on just as good ground, realized from forty-five to seventy-five bushels to the acre. Some of my neighbors and others have adopted my mode of culture, and have succeeded, probably not to the extent that I have, but in proportion to the skill and diligence with which they manage their affairs generally.

I wish to call particular attention to the suggestion with regard to turning under the stalks, straw, stubble, etc., deep down into the bottom of the furrow, when breaking up the ground. To effect this, I use a plow with a mold-board such, that while it is narrow, and thereby greatly lessening the resistance and saving the team, is so constructed as to turn the surface of the soil, and all that may lie thereon, into the bottom of the furrow. The advantage by this litter lying under the growing corn, where it remains undisturbed, cannot be over-estimated. As before stated, this rubbish has the effect of drawing off the excess of water in the first part of the season; and later, while undergoing decomposition, retains moisture and affords a loose, rich soil for the roots of the corn. By this means, in almost any ground, from eighteen inches to two feet may be added to the length of the stalks, and the size of the ears increased proportionately.

BLOOMINGTON, ILLINOIS.

MEADOW AND PASTURE.

BY HON. A. WOLCOTT.

In seeking for a subject as the theme for a brief essay, I find that during the last few years, under the enterprising auspices of the State Board of Agriculture, able discussions have been presented to the public treating upon nearly every branch of practical agriculture. That I may not write of that which others have written about, from a wider range of observation and experience than have been allotted to me, and because they constitute interests of the very highest magnitude, amounting annually to hundreds of millions of dollars in their products, I will say a few words concerning the meadow and the pasture. The staple grasses are timothy, clover, and blue-grass. From these are produced nearly all our milk, butter and cheese. Upon these are mostly fattened our mutton and beef. These constitute the principal part of the food of all the horses of the country, and upon these, until the period of fattening, are, in a great degree, raised the swine that produce our bacon and pork. Each of these grasses has its peculiar and special excellencies.

Timothy, as pasture and meadow, heads the list in productiveness and worth. As pasture, it is tolerable early, and, unless too closely fed, remains green and flourishing till late in autumn. If allowed to mature, it will remain green at the bottom till long in winter, furnishing, when not inaccessible by reason of encumbering snow, excellent and cheap winter feed for all stock, but most especially for sheep and horses, both of which classes of animals will work in the snow for the fresh grass beneath it. Continued close pasturing of timothy is to be avoided, if it is desired to maintain the timothy as the crop of the field—for by continued pasturing its vitality is weakened, the yield is materially reduced, and, finally, it will be superceded by blue-grass, or worse, perhaps by weeds.

For horses, the only proper hay is fine, unmixed timothy. It is better than the product of any other grasses, either alone or in proportioned admixtures, though timothy and clover are often sown together, both for hay and pasturage. But clover can seldom be cured in the bright, fresh condition necessary for its safe use for horses. The fine dust that arises from the clover mould soon engenders that most common of horse diseases, the heaves. Mouldy timothy will also readily produce the same disease, but timothy can usually be cured without mould.

As the hay to be grown for cattle and sheep, common experience pronounces in favor of the mixed crop; not but that the pure timothy is better, for any stock, but the mixed crop is thought to be much the most productive; and it is said a meadow composed of the two grasses combined remains longer without deterioration. The theory on this subject is that the ground is kept loose by the large penetrating and branching roots of the clover, promoting a vigorous growth of the timothy, which flourishes best in loose soil, while at the same time the upright stalks of the timothy furnish a support to the vine-like clover, which also, by reason of its flexible but heavy stalks and leaves, tends to the ground, in some degree excluding heat, light, and air, the vital agents of vegetable life.

As pasture grass, the timothy and clover combined yield most abundantly, furnishing at the same time an appetizing variety. The clover is a little the earliest in spring, and the timothy lasts much longest in fall. But, during most of the season, both grow vigorously together.

Blue-grass, which, in the strictly grain growing districts is estimated as having no value, is held in the highest esteem in the grazing regions. It is the earliest of all the grasses, but dries almost entirely away in mid-summer. In the latter part of the season it begins to grow again, and continues to grow till late in autumn, the leaves remaining green and succulent long after the other grasses are dead and withered. To stock-growers, this grass as late fall and winter pasture, is of so great value as to be deemed almost indispensable. But, as hay, blue-grass has little value, the yield being light, and the quality inferior. Blue-grass furnishes most excellent and cheap early food for swine, which graze upon it with relish and avidity; but clover is the special grass for hogs. After it is in bloom, if a good crop, it will maintain in a thriving condition at least eight grown hogs to the acre, till early corn is ready for feeding.

What blue grass is to the cattle-grower, clover is to the hog-raiser — a very economical and almost indispensable crop, saving much for the corn cribs and grain bins.

CULTIVATION.

Timothy, though acclimated and naturalized, is not indigenous here, and is liable to degenerate, and finally, in the strifes of vegetable life, to be eradicated by the indigenous and more vigorous red-top and blue-grass. It is dependent upon the care and skill of the farmer. Though often self-seeding, its propagation and maintenance may with strict propriety be considered to be by means entirely artificial. To obtain a profitable crop a strict compliance with the conditions imposed by the laws of nature is indispensable. The purpose of the grower is to cause the timothy to supercede the thousands of indigenous weeds which often infest the land, and are ever ready to make their appearance. The seed-bed for timothy should therefore be well prepared, clean and mellow—no weeds, no grass, no stubble, but the naked earth, on which the sun may dispense the immediate benefits of light and heat, and on which the fertilizing rains and dews may directly fall. No crop more imperatively requires a well pulverized and thoroughly prepared soil. If sown in the fall it should be early, that the young plants may become so far grown and established as to endure the rigors of winter. If spring sown it should be early, that the young plants may obtain root enough to endure summer drouths. August or early September are the fall months for seeding, and March or early April for spring seeding. Timothy, fall seeded, on good and well prepared soil, may be mown the next season and a first class crop realized. It will thrive best sown by itself, but may be sown *with* wheat, rye or oats, not *after* them. The young grass plant must have an equal chance at the beginning with the grain with which it is to grow. If the grain is first allowed to start, and cover, and shade the ground, the timothy will not make a vigorous beginning. Commencing life enfeebled, it will remain so for years. When seeded in grain the grain should be thinly sown, that it may not, during its growth, too much shade and smother the young grass.

The ordinary practice in sowing allows too little seed to the acre, most people giving but one bushel of seed to eight acres of ground; the theory of those who thus sow being that the grass will thicken from year to year, until finally a full crop will be obtained, whereas the first and second crops ought to be the largest and best. It is a foolish loss of the use of one's land to raise a half crop of timothy by thus seeding. A bushel of seed should not go over more than five or six acres at the most, and limited to four I think is better. I have raised two tons to the acre as a first crop, sowing a peck to the acre.

As a general thing, the meadows of the country are far less productive than they easily might be made to be. Frequent as are the partial disappointments in the growing of this valuable grass crop, it may be made almost always a success; but the natural laws which govern its growth must be observed.

After having established the meadow the next thing is to maintain it. No meadow should be pastured at all, until the grass roots are so well set that in grazing the stock will not pull up the young herbage. No meadow should be pastured in the spring of the year, it will enfeeble and greatly reduce the crop. No meadow ought to be closely pastured, even in the fall; and a better crop will always be obtained if not pastured at all; though in the fall of the year, light or half a pasturing is not materially injurious. It will enrich and benefit the meadow to feed any thing upon it that the farmer has to feed. Manure spread upon meadows will benefit them greatly. Old meadows, becoming sod-bound should be restored to productiveness without delay. This may be done, without breaking up, by allowing a crop or two to ripen, its seed falling to the ground, and then fall pasturing with heavy stock, till all that is eatable is consumed, and the ground is well cut up by the hoofs of the cattle. An old meadow is profitable to cultivate as it is mostly free from weeds, and productive; but it should be fall plowed to kill the cut worms with which the sod usually abounds.

In seeding timothy and clover together, a bushel of timothy and a peck of clover is sufficient for eight acres.

CLOVER.

Clover should also be sown upon lands well pulverized and loose. It is usually sown in the month of March. It may be sown in wheat, rye, or early oats. It takes root and grows more readily than timothy, and may be sown in the growing grain. Four quarts to the acre is a sufficiency of seed. Clover may be continued upon the land for any desired period of time, by withdrawing the stock from its pasturage in August, so as to allow its seed to ripen, by which means the field becomes annually reseeded. Both timothy and clover may be sown in clean corn land, among the stalks or in the stubble.

BLUE GRASS,

"Native, and to the manor born," constantly asserts its presence, here and there in the field; and in the pasture, if dry land, soon obtains a permanent footing. The wild grasses of the prairie, and the timothy of the meadow, will, if long and closely grazed, finally yield to it. But to establish thoroughly and exclusively, a blue grass pasture, with uniform and continuous sod, is the work of much time. It is said such pastures improve in the quality and quantity of grass they produce for thirty years. On these old pastures are cheaply produced the finest beeves that go into our markets. Those who have cultivated lands, and desire to lay them down in blue grass pastures, will do best by seeding blue grass lightly in timothy. Good grazing will be at once obtained. The blue grass, ripening in June, while the timothy is still young and tender, will be neglected by the stock, which allows its seed to ripen and scatter over the field; when it soon takes root and grows to the exclusion of most other grasses. Blue grass, scattered upon prairie lands, that are being fed closely, by the process just named, materially shortens the time when the blue grass will become well set. Blue grass establishes itself but slowly on wet lands, and all the valuable grasses, timothy, clover, and blue grass, should, for their best development, have a dry soil.

WHITE COUNTY, INDIANA.

PRIZE ESSAY

ON THE

FEEDING, RAISING, AND MANAGEMENT OF HOGS.

BY JACOB KENNEDY.

In the first place, to breed hogs successfully, we should have a perfect sire and dam—perfect specimens in every respect. They should be of good length, small head and neck, thin ear, short in the shoulder from the neck to the middling or side, deep from the back down, short legs, and strong bone. The sides or middlings should be well spread out from the back-bone, so as to give free play to the lungs. They should be thick through the region of the heart, and long from the shoulder to the ham. The ham should be thick and long from the hock to the coupling. They should be square behind, and straight on the back, with a nice, smooth coat of hair.

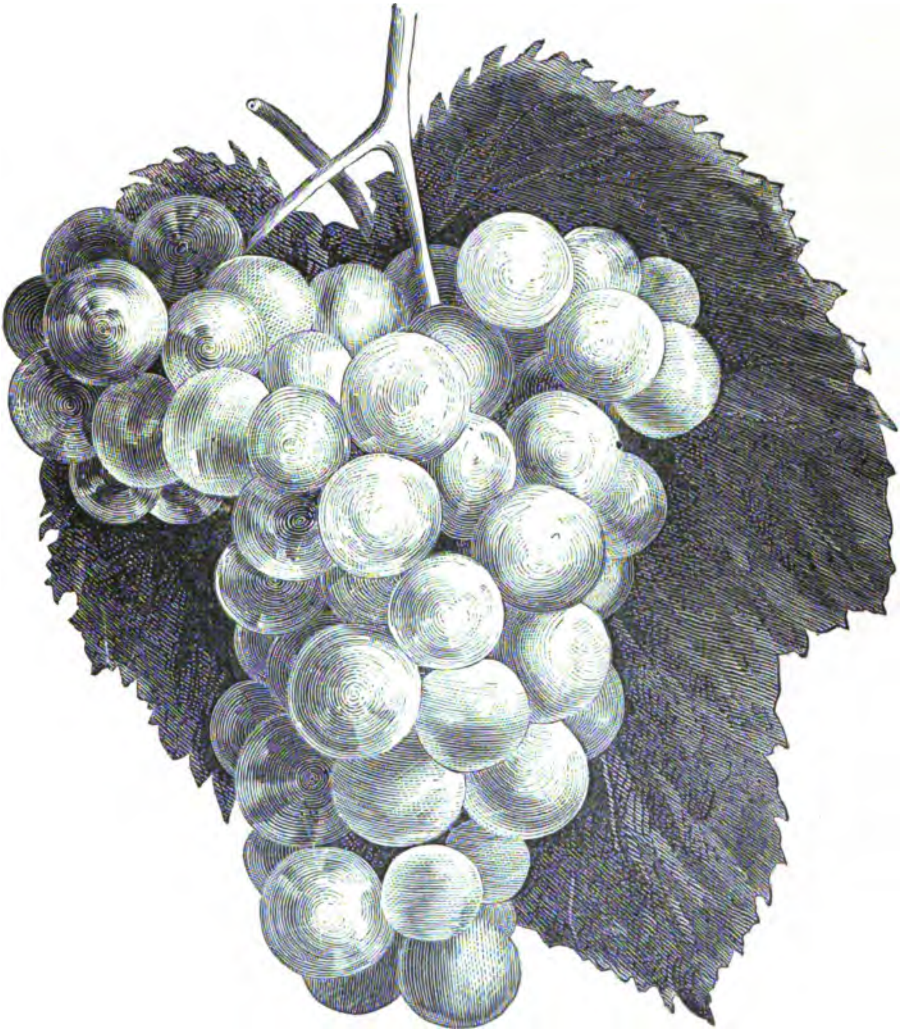
BREEDING.

The sow should be bred about the first of November, if the pigs are designed for the following fall market. This will bring the pigs about the first of March. Have a good place for the sows to pig in—perfectly dry, with little bedding, as with much, they are apt to smother the pigs. Do not let them remain in the same bedding more than three or four days at a time. Make a fresh bed of leaves, if you can get them, if not, dry straw will do. The sows, when bred, should not be too fat, but should be kept in a thriving condition during pregnancy. When the pigs come, the sows should not be over-fed till they are clear of fever, as over-feeding has a tendency to increase the fever and keep the milk longer from getting good. After the sow is freed from fever, she should be fed all the corn she will eat, but none before—to be followed with good, rich slop, with little water in it. When the slop is thin, the sow has to fill the stomach too full to get the proper quantity of nourishment. The slop should not be sour. As soon as the pigs get so they will eat, they should be fed as much good, rich food as they will consume. It should be in a condition most easily digested—cooked or ground, and both would be better; otherwise the system would have too much labor to perform in converting the food into flesh, bone, and fat. If you have plenty of milk, you can well afford to give it to the pigs, as it will make an abundance of bone, and thereby room for flesh and fat. Let the sow and pigs run at large; in a natural forest is the best place. They should never run in clover fields, as the dew will cause the pigs to get sore about the ears. When the harvesting is done, put them in the fields and let them do the gleaning. The watch-word should be "Feed! feed!! feed!!! often and well." If the pigs are to be kept through the winter, for store or stock hogs, they should be pigged about the first of May, as they will make hogs as large by the second fall afterwards as they would if pigged two months earlier. Thus two months of attention and feeding will not only be saved, but the risk of dying from bad weather will not be so great, and they will be just in time to do the gleaning in the stubble-fields. Hogs raised in this way should follow stall-fed cattle during the winter. Have two lots, and let the hogs glean one while the cattle are fed in the other. The refuse left by the cattle will furnish the hogs good and abundant bedding, something they very much need in bad weather. When the cattle feeding is over, turn them into clover, still feeding them a little corn twice a day. If the clover is first rate, the corn may be left off entirely at the end of two weeks, decreasing the quantity gradually, and they need not be fed any more corn till fattening time. Fattening should commence about the 20th of August; a little earlier would do no harm. When the time comes to fatten, the hogs should be put into a natural forest, covered with underbrush, leaves, and old logs, with plenty of good running water. If you are not fortunate enough to have such a place, get one as nearly like it as possible. The hogs should be visited often—at least three times a day—so that all will become perfectly gentle. Never call them up without having something to give them, if it is only a little salt or a few grains of corn.

These conclusions are not mere speculations, but the result of years of careful observation and experimenting by the author of this essay.

ELIZABETHTOWN, Hendricks Co., Ind.

IVES SEEDLING GRAPES.



IVES SEEDLING GRAPES.

PRIZE ESSAY

ON THE

CULTIVATION OF WHEAT.

BY CHARLES McGREW.

While engaged in the business of farming in the States of Ohio and Illinois, for many years, my attention has often been called to the fact that our wheat almost always freezes out more or less in the months of February and March. Sometimes, the ground being too wet, it would heave up, breaking the roots and leaving the wheat to perish At other times, in the latter part of winter or in the early spring, the earth being very dry, the February and March wind being frequent, the earth was displaced from the roots of the wheat, it would also perish and dwindle away. I thought perhaps plowing it in, and in this way depositing the seed three or four inches below the surface, and having more depth of soil, it would be more likely to live until the warm spring rains came. I tried the experiment, but failed. I then concluded that the drill would be the remedy for a dry spring, as in this way a small furrow was left where the seed lay, some three or four inches beneath the surface. The roots of the wheat being two or three inches below the general surface, when the earth was very dry and easily moved by the February and March winds, the tendency would be to fill up the furrow where the wheat stood and so preserve and keep it alive; but to a certain extent I failed in my expectations. I had for many years observed, that not only my own wheat, but that of my neighbors, near the fence, or the turning row would be green all winter and spring, having a broad blade, and would start off fine and strong in the early spring season and would mature well and be ready for harvesting several days before that which was more distant from the fence or turning row. I supposed, with many others, that this was the result of the snows drifting and lying about the fences more than other places, and thus preserving the wheat: as it will be admitted by all who have any experience in wheat raising, that a good, deep snow lying upon the wheat fields, during the winter and until the early spring, will almost invariably insure a good wheat crop.

A word as to the turning rows: I always kept them more clear of weeds or anything to prevent the snow from being blown off than any other part of my farm; yet I would have good wheat in these same places, which proves that the snow was in no way responsible for the result. From this I was driven to the conclusion that there must be some other cause, why the wheat should always be more thrifty in those places. I became satisfied that we were in the habit of planting too deep. When either drilled, harrowed or plowed in, the grain is deposited from one to four inches in the earth. Thence it sends forth a blade or stock, and another set of roots is formed at the surface of the ground. The stem between the surface roots and the grain is at first about the size of a common knitting needle, gradually as the plant grows, diminishing until at the end of a few weeks it is reduced to the size of common sewing thread.

My experience is, that when the first freezing takes place, the stalk with the surface roots is raised up, breaking off the stem connecting them with the grain beneath, thus depriving the plant of its main support during the winter. I then began experimenting to satisfy myself whether or not I was correct in my theory. My ground being all about the same quality of soil, I prepared five different pieces of ground of equal size, about five acres each. I first plowed it all up about the same depth. The first I sowed broad-cast and plowed it in with a cultivator; the second I sowed broad-cast, harrowed and rolled it; the third I drilled in, with the common two-horse drill; the fourth I brushed first, sowed broad-cast and brushed again and rolled; the fifth I simply brushed, sowed broad-cast and rolled, the roller being heavy enough to force the seed into the earth. In the last instance, the seed being near the surface of the ground, the roots and blades all form together, and are together lifted up by the expansion or lifting of the earth by freezing, and so settling, holding their position in it.

The blades of the wheat sown in this manner are about twice as broad as of that planted deep in the ground, lying out flat upon the ground, protecting the roots by preventing the soil from being blown away by the February and March winds.

From these five pieces of ground the yield was as follows: From the first was realized twelve bushels per acre; the second, seventeen; third, eighteen; fourth, twenty-one; fifth, twenty-eight.

From this experience I have since then always adopted the latter method, and at one time gathered an average of thirty-five bushels per acre, from a piece containing not less than forty acres. Let the plow in all cases be followed by the brush, and if the ground should be too dry to sprout the grain, it should be again brushed after sowing and then rolled. I always roll my wheat ground as soon as the frost is out of the ground in the spring, to prevent the loose soil from being washed away from the roots of the wheat.

BLOOMINGTON, ILLINOIS.

FIRE AND RAT-PROOF BUILDINGS.

This invention obtained the merited award of a silver medal from the State Board of Agriculture, and at the present time is being used in the construcion of the City Library buildings, Cincinnati; Fowler's National Bank buildings, at Lafayette; the new county buildings, at Lafayette and Logansport; and the new *Sentinel* building, Indianapolis.

The inventor has spent three years in experiment and study to perfect this system, and, while primarily aiming only to perfect a system of fire-proof building, now claims that he has secured several important results not at first contemplated. One of these coincident results is the rendering of a building rat-proof, as well as fire-proof. A second is, that a very superior wall to that formed by plastering on wooden lath is obtained; the cement or plaster not drying out rapidly, but retaining its moisture until a perfect chemical combination has taken place between the materials of which it is composed. The plaster is found after it has hardened, to be four times as hard as common plastering. The peculiar form of the iron laths also prevents the falling down of any portion of the plaster from any ordinary cause, or from the action of great heat. Great pains have been taken to bring the cost of this method down to such a figure that it can successfully compete with the ordinary materials and methods of building. The inventor informs us that this has been so far accomplished, that the cost for fire-proofing a floor, which also answers for deafening it, is not so much as that of wood used for deafening or "pugging."

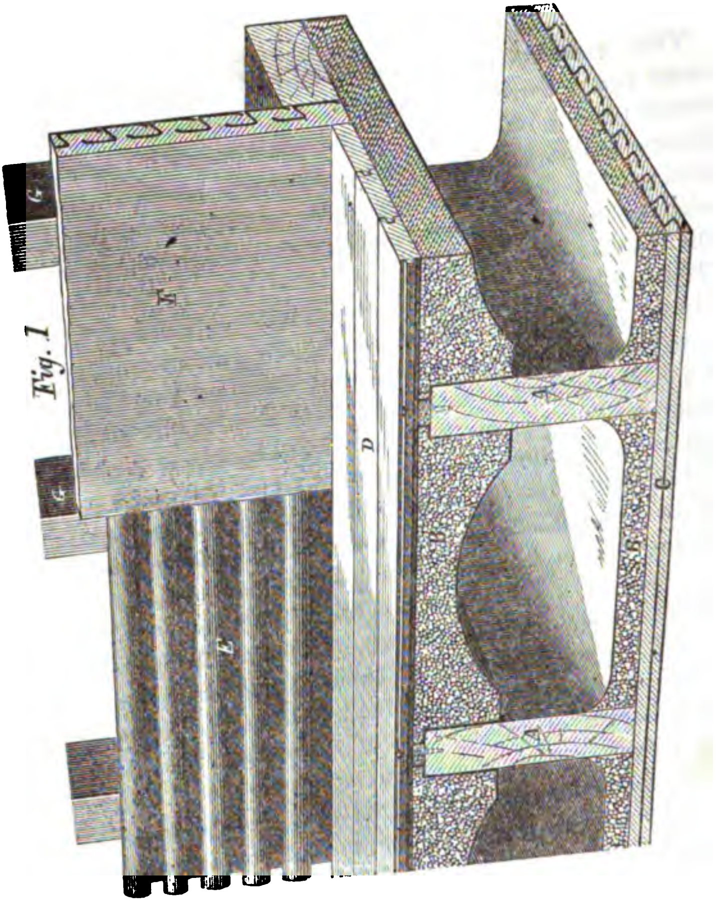


Fig. 1

(See Page 343.)

The features of this invention will be easily understood by the aid of the accompanying engravings. Fig. 1, (see page 342,) is a sectional view of the upper and under side of a fire-proof and rat-proof floor, with intervening joists and spaces, and also of a vertical wall, with sections of lath and concrete.

In this engraving the joists are lettered A; B is the concrete; C is the lath and plaster, or ceiling, on the under side of the floor; D is the floor; E the iron lathing; F the plastering; and G the studs.

Fig. 2.

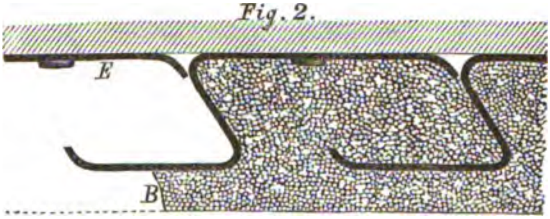


Fig. 2 is a section of the iron laths and the plastering, full size, showing the peculiar form of the laths, and the manner in which they support the plastering.

Fig. 3.

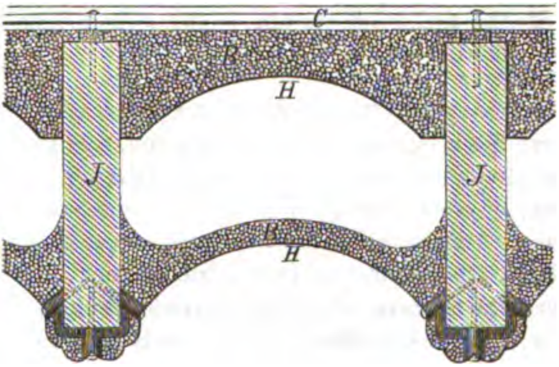
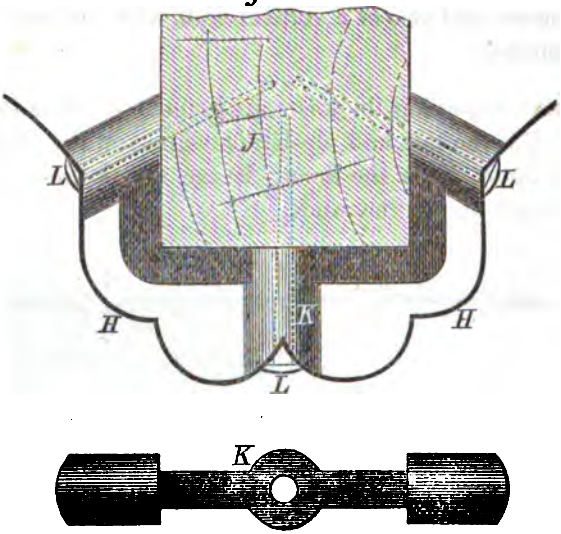


Fig. 3 is a section of flooring and metallic ceiling for manufactories, etc., in which the letters H represent, respectively, a metallic arch, with rib mouldings, and also a metallic arch to support the concrete underneath the flooring; J the joists, and C the flooring.

Fig. 4



The method of putting on the metallic ceiling is shown in Fig. 4, in which H represents the metallic ceiling, J the joists, K the firring-off clamp, L the nails which secure both the metallic arch and clamp.

The whole system will now become perfectly plain to all who have the least knowledge of building, and we think it must be obvious to every candid reader that neither fire can consume, or rats penetrate, a wall of this construction. The basis of these walls is wood, but wood so protected from the external heat, that only a fire of such intensity as to convert the timbers into charcoal, could weaken the main structure. Such an effect could scarcely be produced by the burning of anything but large quantities of the most concentrated fuel inclosed in a building for a long period. The term fire-proof, as applied to buildings, can only be understood to mean proof against the destructive action of fires such as can occur in and around buildings in the course of the ordinary business of life. From what we can judge of this system, we think it promises as well, certainly, as any of its rivals; and, as the inventor states some ten or twelve first-class buildings are to be erected this season on this plan, its efficacy is evidently believed in by those who are qualified to decide upon its merits.

This improved system of constructing fire-proof building has been made the subject of three patents, viz.: January 26th, April 13th, and May 4th, 1869, by Edwin May, of Indianapolis Indiana, who should be addressed for further particulars.*

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*This article should have appeared on page 182, entry No. 77, but as Mr. May's cuts were in New York, and could not be had in time, we make this a "special article." In so doing we think we are justified by the fact that every county in the State is interested in so constructing public buildings as to make them as secure as possible, and the fact that we have comparatively but few "new court houses," as yet, in Indiana, and that improvements of every sort are eagerly sought for as a matter of information, justifies this publication out of its regular class.—SECRETARY.

ABSTRACT

OF

COUNTY AND DISTRICT REPORTS

FOR 1869.

BOONE COUNTY.*

To the State Board of Agriculture:

The report for last year showed our almost disorganized condition for eight years past. The object of this report will be to note the progress of the society for 1869. At the annual meeting in January, proceedings were had and plans inaugurated which resulted in the leasing of suitable grounds for the term of ten years, to be fitted up for the annual exhibition of the society. About twelve acres have been surrounded by a good plank fence, seven feet high, with entrances. The buildings within the grounds consist of two halls, one twenty by thirty feet, the other twenty by eighty feet, an office, together with a number of cattle and horse stalls, sheep and hog pens, and such other fixtures as are common to such grounds. A track one-fourth of one mile in circuit was graded within the stock ring, for the accommodation of equestrians, and for the exhibition of horses in harness and under the saddle. Three wells were sunk, walled, and furnished with pumps, a dining hall, etc. The Board offered more cash premiums in the enumerated lists of a lower grade than they would have done under more flattering circumstances. The writer, however, is not partial to high premiums, but in lieu thereof would recommend an increase of the number to be awarded, in lists where the competition is large and close. Have a first, second, third, and even a fourth premium, where the funds and competition will justify it.

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* This article is a straightforward, intelligent report, and gives one some idea of Boone county.—SECRETARY.

The fair was held at Lebanon, October 5th, 6th, 7th and 8th, and was highly creditable to all concerned. The competition and show in the stock department was not as extensive and spirited as it should have been, but this will not be likely to occur next year. The weather was very fine, and the attendance much larger than was to be expected under all the surroundings. Exhibitors and visitors were all interested, and generally well satisfied. The entries were 553; the amount of premiums awarded, $560.

The receipts are as follows:

From old fund	$637 85
From county treasury—licenses of shows	463 50
From members, and sale of tickets at fair	1,730 00
Total	$2,831 35

Paid for lumber, work and materials in fitting up grounds	$1,013 77	
Paid for premiums, help, and printing at fair	617 20	
Premiums awarded, not yet paid; estimated bills for work on grounds, etc., not yet settled	200 00	
		$1,830 97
Which leaves probable balance		$1,000 38

This balance will be expended in further improvements upon the fair ground, during the coming spring and summer, which, with improvements already made, will make it reasonably comfortable and convenient.

The soil and timber of the county is generally good, and of the varieties common to the summit lands between White River and the Wabash. This timber is now being converted into sawed, split and hewn stuff for transportation, for the various purposes to which timber is applied. The trade and business in timber, at this time, is very large, but we have no reliable data from which to state the amount.

The number of acres of land placed upon the tax duplicate is 264,586. There is no statement, however, of the amount cultivated. It is estimated that one-half of this is cultivated in pasture, meadow or grain. The crops consist of corn, wheat, oats, buckwheat, vegetables, and all the grasses, and with proper culture are remunerative and satisfactory. The grasses, such as blue grass, timothy, clover, and red top, grow in great luxuriance wherever they have any attention. The blue grass seems readily to take the pastures, and is one of the best grasses for pastures in early summer, fall, and winter.

The value of lands for taxation is put down at $3,720,245, and the value of improvements, $1,045,650, and total value of taxables, including personal, $8,311,620. The actual value is probably $15,000,000, or more, in the county.

Our system of farming is not as thorough as it should be, in many respects, but there is an active interest and a spirit of improvement in this regard. There should be more grass and better stock, fewer acres of corn, deeper tillage and more thorough drainage. The latter is receiving special attention; and no enterprise of our citizens promises so important results to the agricultural wealth of our county. Respectfully,

A. J. Boone, *Secretary.*

DEARBORN COUNTY.

To the State Board of Agriculture:

The Fair of this county was held during the week, from the 13th to the 18th day of September, and was, after a good shower during the night of Tuesday, continuing Wednesday, for the rest of the week, favored with good weather. The clouds on Friday morning probably kept many people away, and the burning of the Gaff distillery at Aurora during Friday night interfered greatly with our visitors from that town and neighborhood on Saturday. Notwithstanding these drawbacks, the Fair of 1869 was more successful, in every respect, than those of many previous years. After experimenting for a long time, we are about finding out the right course, and as one step forward, have abolished commission fees on such entries where the premium offered is less than five dollars. This course has filled our halls so well, and the arrangement of the articles in the exhibition were, by well selected hands, so thoroughly and tastefully made, that every visitor seemed to be pleased. Another good change was made in reducing the premiums on fast horses, thereby saving enough to pay for the services of a good brass band, so long excluded, without experiencing any lack in the number of sporting horses.

The total number of entries was little less than a thousand. Seventy-six were for horses alone. The number of cattle on exhibition was larger than ever; in three rings of graded cattle we had fourteen entries, and in sweepstake bulls five entries.

The mechanical list was well filled, and the agricultural productions were numerous and of rare excellence. There was some of the *Tappahonack wheat weighing sixty-six and a half pounds to the bushel.* The whole length of one side of our large mechanical hall was thickly spread with the finest fruits, and our circular floral hall never before deserved better of its name. The flowers exhibited by our friends H. C. Vincent, of Guilford; Humpfield, of Cochran; and Ferris, of this place, showed a decided improvement in this branch.

The total receipts were........................	$1,452.90
Amount of premiums paid..................	1,013.00
Amount of expenses and some old accounts.....	401.15

Leaving still a balance on hand.

This year, we are glad to say, a spirit of co-operation on the part of the farmers was more perceptible, and it is to be hoped that this spirit will grow every year until the whole fair will be in the hands of those for whose benefit it is, and originally was, intended to be, namely, the farmer and mechanic. We say this, not intending thereby to criticise the board, for they have worked hard for the last five years to bring this Fair up to its present standard, but we say it because we think that by the participation of more heads, and more frequent consultation, a great deal of good might be effected. Our farmers and mechanics ought to claim these fairs as their own; and, instead of being mere visitors, or competitors for premiums, they ought to seek to obtain the management thereof to their own and their neighbors' benefit.

Expecting that there will come in some more similar epistles, I will stop here.

The officers of the last Fair are the old ones, but in the Board of Directors some additions have been made, whereby the Society must certainly profit.

Yours, truly,

P. L. Mathews, *Secretary.*

(EDINBURG UNION) JOHNSON COUNTY.

To the State Board of Agriculture:

The Edinburgh Union Agricultural Society, composed of the counties of Johnson, Shelby, Bartholomew and Brown, would respectfully submit the following report for 1869:

The society held its tenth annual fair at Edinburg, Johnson county, September 21st to 27th. The fair was very largely attended, and the interest manifested by the members of the society, as well as by the people, was such as to warrant the belief that our society stands high in the estimation of the community and speaks well for the interest the people, in this part of the State, take in agricultural and mechanical pursuits.

The increased favors the society has received from all classes of citizens gives great hope for its future welfare. The number of entries were by far larger than ever before made, and everything entered seemed to be an improvement upon those of silimar character heretofore exhibited.

The live stock was all very good and in some respects superior.

Farm products were by far the best ever exhibited here, and the garden products on exhibition could not be excelled.

There was the largest collection and the best quality of fruits on exhibition at this fair that ever has been exhibited here.

The mechanical department was very fine.

In the ladies' department or floral hall there was scarcely an article that did not have more or less competition. Specimens of various kinds, such as embroidery, knit work, dresses, bonnets, quilts, the largest and finest assortment of table comforts ever shown here, and, in fact every article which, in its manufacture, requires the skill of the ladies, are useful in the household and tend to make the home pleasant and domestic life desirable, were on exhibition.

The fair passed off without an accident and with entire satisfaction among exhibitors, which speaks well for the management of our efficient officers.

NUMBER OF ENTRIES.

Live stock	285
Mechanical	154
Miscellaneous	260
Agricultural	135
Total	834

Receipts from all sources during the fair	$3,262 05
Paid premiums and expenses	2,003 27
Net profit of the tenth annual fair	258 78

Financial condition of the Society:

RECEIPTS.

Remaining in treasury at last report	$5,422 60
Received from the treasurer of Johnson county	60 00
Received from the treasurer of Shelby county	135 80
Net profit of tenth annual fair	258 78

EXPENDITURES.

Paid for expenses and repairs on grounds	$409 75
Leaving in the treasury	5,467 43

The annual meeting of the stockholders was held at their office November 13th, 1869, when the following officers, for the ensuing year, were elected, viz:

HARVEY LEWIS, President.
M. V. ENSLEY, Vice-President.
I. M. THOMPSON, Treasurer.
W. N. KYLE, Secretary.
JACOB MUTZ, Superintendent.

Directors—John A. Thompson, J. P. Forsythe, Johnson county; Daniel Snepp, Samuel Cutsinger, Shelby county; James Ely, S. H. Kyle, Bartholomew county; John Snepp, Israel Miller, Brown county.

John A. Thompson, Representative State Board of Agriculture.

Executive Committee—Harvey Lewis, John A. Thompson, Samuel Cutsinger, Israel Miller.

While in some parts of the country the crops have been a partial failure, we have had the best crops ever known in this section. The corn mostly raised in this section is the Armstrong corn, and the early frosts have not injured it: so we have more than an average crop. Wheat and other cereals yielded abundantly. Vegetables and fruit of all kinds are plenty, and in short, providence has blessed us with an abundant harvest. We are getting a fair price for our grain and farm products, a large price for our hogs and a fair price for all other kinds of live stock; indeed, we rejoice that we live in this great agricultural age—*in this God-favored land*—enjoying the fatness thereof.

HARVEY LEWIS, *President.*

W. N. KYLE, *Secretary.*

FOUNTAIN, WARREN, AND VERMILLION AGRICULTURAL SOCIETY.

To the State Board of Agriculture:

The Society held their tenth annual fair, at Covington, Fountain county, October 5th, 6th, 7th and 8th.

The following are the officers:

ELIAS SCHLOSER, President.
DANIEL YOUNG, First Vice-President.
AMOS FLESHMAN, Second Vice-President.
P. V. HACKET, Third Vice-President.
DAVID RAWLES, Treasurer.
ISAAC HAUPT, Secretary.

Executive Committee— Henry La Tourette, G. Diffendaffer, William Ferguson, Benjamin Bilsland, R. D. Brown, and Colonel James McManomy.

The display of horses and farm products was excellent. Number of entries, 538. The receipts, from all sources, were $1,700; amount paid in premiums $800.

The society proposes to build a new Floral Hall before the next annual fair.

The success of our society bespeaks for us a most prominent position in this agricultural district.

Isaac Haupt, *Secretary.*

FRANKLIN COUNTY.

To the State Board of Agriculture:

Report of the Franklin County Agricultural Society, for the year 1869:

RECEIPTS.

From tickets		$1,175 40
From stands, etc.,		126 90
From show licenses		125 00
Total		$1,427 30

EXPENDITURES.

Paid out on premiums	$947 00	
Repairs, etc.	384 00	
		$1,331 00
Balance		$96 30

Some bills yet outstanding.

Total number of entries, 1,085.

You will perceive that our expenditures exceed our receipts, which is owing to our Board of Directors making considerable permanent improvements. The attendance at the fair was very large, and the exhibition a success. The wheat crop was very good, perhaps an average throughout the county of from twenty to twenty-two bushels per acre. Corn also, is good, I think an average crop on the bottom lands, but very short on the uplands. Fruit, good, but somewhat injured by the *freeze*, with large quantities of apples. Pears, very good. Peaches, plenty, but not so good as last year. Plums and grapes almost a total failure. The smaller berries were abundant. I should have stated above that large crops of fall barley were raised in this county, which was very good, as also flax seed. The season has been more favorable here than in the extreme northern or southern portions of our State.

Yours respectfully,

F. R. A. JETER, *Secretary.*

FULTON COUNTY.

To the State Board of Agriculture:

The Fulton County Agricultural Society was organized August 15, 1857, and held successful fairs each succeeding year, until the fall of 1865, when the fair was a failure, financially, and we have held none since that time. The lease of the ground on which the fair was held expired in 1867. The lumber in the fences and stands was sold, and the society disorganized. In December, 1868, the society was reorganized, on the stock plan. Mr. A. J. Holmes, formerly Secretary of the State Board of Agriculture, took an active interest in our success, and spent considerable time soliciting stock, selecting ground, etc., and for a time we seemed to be progressing finely, and intended to purchase ground and hold a fair this fall, but the untimely death of Mr. Holmes, the most energetic and efficient member of the society, together with the wet, unfavorable season, completely discouraged the farmers, and the purchase of grounds was indefinitely postponed. We intend, however, to make another effort the coming year, and from the interest manifested by our best farmers and most prominent citizens we trust that it may be successful.

DAN. AGNEW, *Secretary.*

GRANT COUNTY.

To the State Board of Agriculture:

In compliance with the requisition of your society, I submit the following report of the Grant County Agricultural Society.

The Society held its fifteenth annual fair September 15th, 16th, 17th, and 18th.

The following are the officers:

HENRY SHUGARTS, President.
D. R. SEEGAR, Vice-President.
JOHN N. TURNER, Treasurer.
D. P. CUBBERLY, Secretary.

RECEIPTS.

Our receipts were		$1,000 00

EXPENDITURES.

Paid out on premiums	$600 00	
Other expenses	175 00	
		$775 00
Balance on hand		$225 00

D. P. CUBBERLY, *Secretary.*

HENRY COUNTY.

To the State Board of Agriculture:

Report of the Henry County Grand Stock Agricultural Society of the fair held at New Castle on the 24th, 25th, 26th, and 27th days of August, 1869.

S. T. Powell, President.
E. Johnson, Vice-President.
John Burch, Secretary.
J. Holland, Treasurer.

The following is the report of the receipts and expenditures for the year 1869:

Total amount received....................	$2,297 95
Total amount paid out....................	2,219 42
Balance on hand..........................	$78 53

Total number of entries made during the fair, 754.

For the first time in the history of fairs held in this county, the Board of Managers determined that entries might be made to compete for any premium offered, free, and that ten per cent. be deducted from the premium. This plan has worked well so far as it has been tried, and when fairly understood, will add very materially to the interest and revenues of the fair.

The present organization was made on the 12th day of September, 1867, with one hundred and twenty-four stockholders, at twenty-five dollars each, making a total of three thousand one hundred dollars, all of which was promptly paid. The society purchased ten acres of land, which is now within the limits of the city of New Castle, which has cost the society, together with the improvements, about five thousand dollars. The society is now out of debt, and a surplus of $78.53 on hand. We have never been in a more flourishing condition.

The following officers were duly elected on the 6th day of November, 1869:

WILBERN HALEY, President.
BENJAMIN ALLEN, Vice-President.
BENJAMIN SHIRK, Treasurer.
DR. JOHN BURCH, Secretary.
CHARLES L. HOOD, General Superintendent.
JOEL HAZELTON, Marshal.

Executive Committee—Jehu Stanly, Ezekiel Phelps, A. J. Berry, Thos. Wilhoit, Geo. L. Koons.

Simon T. Powell was appointed to represent this society in the State Board of Agriculture at the next January meeting.

JOHN BURCH, *Secretary.*

HENDRICKS COUNTY.

To the State Board of Agriculture:

Report of the Hendricks County Agricultural Society for the year 1869:

FRANK HAYNES, President.
JAMES W. FAUGHT, Vice-President.
E. F. HUNT, Treasurer.
ED. H. STRAUGHAN, Superintendent.
JOHN V. HADLEY, Secretary.

We held our seventeenth annual fair from the 31st day of August to the 3d day of September inclusive.

Entries	526
Receipts from all sources	$2,088 79

DISBURSEMENTS.

Premiums paid	$1,260 23
Improvements	700 00
Incidental expenses and salaries	125 00
Balance in Treasury	$3 56

We introduced an innovation into our fair this year, namely, the utter exclusion of time rings and all manner of traveling shows from the grounds. We set out this year to have a farmers' and mechanics' fair; that and nothing more—fully determined that sporting men and gamblers should not, for one year at least, ply their vocations among us under the protection of the honest and legitimate industry of the county. This course of the society, from its first inception, met with a factious and determined opposition, and from January to September the question was much discussed whether horse-racing, fat women, big snakes and gaming tables aided in the advancement of agriculture and the mechanic arts. The result of our first fair under the new *regime* shows how the people of Hendricks county regard such things. As compared with the fair of last year, when we offered a premium twice as large as for any other class for the fastest horse or mare, and when the organs and cries of solicitous showmen might be heard on all sides, our books show that this year our entries increased more than seventy per cent., and our receipts more than one hundred per cent.

Frank Haynes, our President, exhibited his bull, "Prince William," that took sweepstakes and the premium for five best calves at the State fair. Also, H. Lingenfelter, Director, showed us his mammoth ox, 3,500 pounds weight, and a two-year old steer, both of which took first premiums at the State fair. Also, Carlos Lowder exhibited his two-year old bull, that has not failed to take the first premium at every fair he has attended this year, including the State fair.

WHEAT.

Our wheat crop this year was good, averaging in the county nineteen bushels per acre, of first class quality. The kinds sown were one part white and two parts red—sown about one part drilled and three parts broadcast. The white variety was the most profitable, yielding more bushels per acre and more money per bushel. In consequence of the mild winter, but little difference in the yield was found in manner of sowing, if any, perhaps in favor of the broadcast. The crop was well saved, and mostly marketed early, at from $1.05 to $1.30 per bushel.

CORN.

In many parts of the county this crop is good. There were five entries for the best acre, (premium to be paid at January meeting,) two of which have at this date (November 8th) been reported as follows: No. 1, 5,169 pounds, or 76 1-68 bushels; No. 4, 8,003 pounds, or 117 bushels.

OATS

are an unimportant crop with us, but good this year.

GRASS.

For hay, timothy and clover were both good. For grazing, blue-grass and clover have both been fine since May 1, For grazing purposes, no county in the State surpasses Hendricks. The freshness and abundance of her waters and grasses makes the district both desirable and profitable to stock raisers.

VEGETABLES AND FRUITS.

These products, except peaches and grapes, were also abundant.

For agricultural advancement and profit, this society are rejoiced to be able to report uninterrupted prosperity during the year. The health of the people has been good, the crops have been abundant, stock of all kinds remarkably healthy, and prices fair.

All of which is respectfully submitted.

JOHN V. HADLEY, *Secretary.*

HOWARD COUNTY.

HONEY CREEK.

S. J. SCHOOLEY, President.
WALKER THORN, Vice-President.
ELI CARTER, Treasurer.
DR. T. J. COUNCIL, Secretary.

The Honey Creek Agricultural and Horticultural Society held its ninth semi-annual fair September 22d to 25th, having a very creditable display in most departments, although not equal to some former fairs. This society is established on a good basis. Being free from debt, and possessing well-improved grounds, we only need, to insure continued prosperity and usefulness, an appreciation by the community of the objects in view—which, happily, exists in a good degree. It is conceded by all that there is a manifest improvement in the stock of the county; also, quite a degree of interest manifest in agriculture. We have one hundred and sixty stalls, sheep and hog pens; our hall is something near three hundred feet long, which affords ample room for the display of articles.

Total number entries	725
Receipts of fair	$1,302 80
Premiums awarded	1,050 00
	$2,352 80
Expenses	252 00
Leaving a balance on hand of	$100 80

T. J. Council, *Secretary*.

HARRISON COUNTY.

OFFICERS.

Samuel J. Wright, President.
Henderson Stevens, Vice President.
Thomas McGrain, Treasurer.

The tenth annual fair of the Harrison County Agricultural Society was held at Corydon September seventh to tenth inclusive. The fair was successful in every respect, the weather delightful, the number of visitors large, and the exhibition all that could be desired. The interest in our annual exhibitions is well maintained, and none are willing to see them discontinued. I send the following items taken from our records:

Whole number of entries	451
Amount of premiums offered	$1,500 00
Receipts by Treasurer	1,899 60
Amount paid out by Treasurer	1,765 62
Leaving balance on hand	133 98

The entries were divided as follows: Live stock, 240; agricultural, 95; manufactures, 59; miscellaneous, 57.

Samuel B. Luckett, *Secretary*.

JOHNSON COUNTY.

FRANKLIN, Ind., Nov. 25, 1869.

FIELDING BEELER, *Sec'y State Board Agriculture:*

I have the honor to submit the following report of the Johnson County Joint Stock Agricultural Society for the year 1869:

The annual fair for 1869 was held on the grounds of the society at Franklin September 14, 15, 16, 17 and 18. The total number of entries was nine hundred and eighty-three.

RECEIPTS.

Day tickets	$1,018 50
Family tickets	516 00
Per cent. on entries	572 15
Shows, etc.	361 10
Total receipts	$2,467 75
Premiums awarded	2,288 00
Premiums paid	2,288 00
Total premiums offered	3,827 25
Amount received over amount of premiums paid	179 75

The attendance during the fair was very large. During Thursday and Friday probably five or six thousand people were present each day, but owing to the system of family tickets adopted by the society, and low price at which they were sold, the receipts were not so large as was expected. The fair was pronounced by those present to be the best fair, in all respects, ever held in the county.

OFFICERS.

CALEB TARLTON, President.
ZACH. WEBB, Vice President.
N. M. SCOLFIELD, Treasurer.
CAS. BYFIELD, Secretary.
WM. H. JENNINGS, General Superintendent.

GROUNDS, BUILDINGS, TRACK, ETC.

The grounds consist of thirty acres of beautifully shaded land, purchased by the society in 1868 at a cost of three thousand dollars. The buildings consist of a miscellaneous hall, thirty by one hundred feet; a floral hall (octagon), forty by forty feet; an amphitheater, one hundred feet long by thirty feet deep, with a promenade in the rear ten feet wide; a dining hall, seventy-five by thirty feet; two judges' stands, and two hundred stalls. The buildings are substantial frames, set upon stone foundations, and all covered with shingle roofs, and cost the society nine thousand five hundred dollars.

The track is one-half mile, and forty feet wide.

Our organization is a joint stock association, and has about one hundred members. The society feel very much gratified with their success, having expended ten thousand five hundred dollars in lands and improvements in a little over one year and a half (this being paid by the stockholders), and having a debt of only fifteen hundred dollars, with property worth at least fifteen thousand dollars.

The agricultural interests of the county are being developed very fast. Our farmers vie with each other in cultivating and beautifying their farms, and are using all their efforts to improve the breeds of stock. The society hopes, by creating a lively emulation among her citizens in mechanical and farm products, to do a great good.

Yours respectfully,

CAS. BYFIELD, *Secretary.*

JACKSON COUNTY.

To the State Board of Agriculture:

OFFICERS.

S. W. Holmes, President.
Elcanah Colb, Vice-President.
S. H. Huffman, Treasurer.
L. W. Mains, Secretary.
A. W. Dickinson, Corresponding Secretary.

The Jackson County Agricultural Society held its fourth annual fair at their grounds near the city of Seymour, on the 14th to the 18th of September, 1869.

The weather was very favorable and everything passed off to the entire satisfaction of the society, the exhibitors and spectators. It was conceded on all hands to be by far the best fair ever held in this county since our organization. The exhibition of stock was not so extensive as heretofore, but of excellent grade and quality, showing conclusively that our people are progressing in the right direction.

The total amount of premiums awarded was...	$872 00
Total expenses, including repairs.......	228 00
Making the total amount expended.......	$1,100 00
The total receipts were..	1,106 40
Leaving a balance of.......................	6 40

which was applied to the payment of outstanding liabilities.

Heretofore a combination of bad weather and political excitement made our fairs comparative failures, in consequence of which, everybody gave us a kick and a curse, but our signal success in our last fair has completely revolutionized public sentiment and everybody seems disposed to lend us a helping hand. By good management we confidently expect complete success hereafter.

The wheat crop of the county this year was the best ever produced.

Corn is a full average crop.

Hogs are not so plenty as last year, but the average weight is better.

Our supply of beef cattle is not much beyond the home demand.

The stock of sheep is better than last year and superior in grade. Many of our farmers are turning their attention to the raising of fine wooled sheep.

Respectfully,

S. W. HOLMES, *President.*

LAPORTE COUNTY.

To the State Board of Agriculture:

OFFICERS.

COL. WILLIARD A. PLACE, President.
ANDREW J. ROGERS, Vice-President.
WILLIAM NILES, Treasurer.
EDWIN G. McCOLLUM, Secretary.

The Laporte County Agricultural Society held its eighteenth annual fair on their grounds, adjacent to the city of Laporte, October 13th to 15th, 1869.

ENTRIES.

Miscellaneous department	37
Mechanical department	426
Agricultural department	179
Live stock department	304
Total	946

Feeling that such ample grounds and such a superior time track should not lie idle, it was determined to hold a horse fair in July. At this exhibition there were sixty-two entries.

The total premiums offered amounted to $148.00, all of which was awarded.

This exhibition was an entirely new feature and gave almost universal satisfaction.

At the annual exhibition, the premiums amounted to $1,476.00, besides diplomas. Cash premiums awarded, $1,066.50.

CASH RECEIPTS.

Horse Fair—	
Entry fee, carriage and single tickets	$211 65
Individual passes, at fifty cents	16 50
Eating stand	15 00
Receipts of horse fair	$243 15
From sale of Grass—	
From first crop	$157 70
From second crop	138 00
Total	$295 70
Balloon Ascension—	
From Prof. Wilder, use of ground	$20 00
From horse association	25 00
From rent of grounds	45 00
Total	$90 00
Annual Fair—	
From sale of members' tickets, at $2	$530 00
From sale of exhibitors' tickets, at $2	19 00
From sale of carriage and single tickets	731 75
From eating stand, shows, etc	90 00
On former subscriptions, about	125 00
Total at fair	$1,495 75

RECAPITULATION.

Cash received at horse fair	$243 15
Cash received from sale of grass	295 70
Cash received for rent of grounds	90 00
Cash received from annual fair and subscriptions,	1,495 75
Total receipts	$2,124 60

EXPENSES.

Paid premiums, horse fair	$148 00
Paid cash premiums, annual exhibition	1,066 50
Payment of old debts, and incidental expenses, about	400 00
Interest on note	100 00
Total expense	$1,714 50
Balance	465 10
	$2,179 60

The exhibition just closed was one of the most successful in point of interest that we have ever held, the display in each department being nearly double that of any preceeding year.

It has been customary, heretofore, to charge ten per cent. upon premiums competed for. This feature has always been as a wet blanket upon a feeble flame, in decreasing the number of entries. I have, from the first, advocated the policy of repealing this clause, and this year was so successful as to get our Board to consent. Accordingly, after the party had paid his membership fee, all entries were free, and the result has been satisfactory.

Another feature, which we have heretofore had as a ruling one, has been to confine all our entries (except a single class) to persons and property owned or manufactured within the narrow limits of our own county. I have ever held that this was injurious to the purchasing class, which is always by far the larger, and hence was a species of petty *protective tariff* that could not too soon be abolished. It shuts out competition, narrows the field of information, cuts off and kills all life, animation, or interest in our fairs, lessens the show of articles, and helps only the few at the expense of the many. If any advantages are to be gained by holding a county fair, they will be increased as the field of competition is enlarged; then the true principle is, open your gates to all, and thereby enable your society to extend its privileges and enlarge its advantages.

The question of membership tickets, family tickets, passes, etc., has always been a vexed one with us, and as yet we are not determined as to the proper solution. Members' tickets are supposed to pass all members of the holder's family through the gates; but experience has proven it to work a depletion upon the receipts amounting nearly to a failure, and a failure to realize the usual amount at the gates at once bankrupts the society. To avoid this contingency, without being too stringent, is the main question to be determined.

Our exhibition being held so late in the season, with rain the second and third days, and the unpleasant and cold weather, lessened our receipts at least five hundred dollars.

A very fine feature of our exhibition was the address of Professor Welch, on the last day, which was listened to with marked attention and general satisfaction.

I ought not to close without adding that our grounds are daily increasing in beauty, convenience, and notoriety. Our time track is now acknowledged to be the best in the State. Our grounds have been planted with many trees, and we intend to increase the number.

Respectfully,

E. G. McCollum, *Secretary.*

LAKE COUNTY.

The Secretary of the Lake County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

Hon. **Bartlett Woods.**
John Brown, Jr., Vice-President.
William W. Cheshire, Secretary.
Hon. **David Turner**, Treasurer.

The Lake County Agricultural Society held its eleventh annual fair, at the fair ground, in Crown Point, on the 7th and 8th of October, 1869. The weather was very fine, and the display and attendance better than last year. The fruit, garden vegetables, and live stock on exhibition, were the best seen here for some years. Our sweepstakes stallion, owned by C. L. Lathrop, has since been to the Laporte county fair, and there took the first premiums.

The society is prospering, and the farming interest of Lake county wide awake.

A new rule was adopted this year, that of charging ten per cent. of the premiums competed for, as an entrance fee.* It brought us in about seventy dollars, and gave general satisfaction. A premium of five dollars was offered for the best five pounds butter, and three dollars for the second best. On the entries of butter (sixteen entries, at fifty cents each) we made money enough to pay off both premiums.

STATEMENT OF FINANCES.

Total number entries, 316.

Receipts of the fair	$646 65
Amount on hand from last year	82 88
Total amount	$729 53

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* See report from Laporte county.

EXPENDITURES.

Paid for sheds, stalls, etc.	$64 10	
Expenses of fair	230 00	
Cash premiums awarded	336 00	
		$630 10
Balance in treasury		$99 43

Yours, very truly,

JOB BARNARD, *Secretary.*

MONROE COUNTY.

The Secretary of the Monroe County Agricultural Society, submitted the following report:

To the State Board of Agriculture:

OFFICERS.

JAMES SMALL, President.
A. KETCHAM, Vice-President.
C. F. DODDS, Treasurer.
M. L. SNODGRASS, Secretary.
L. E. Kinney, Superintendent.

The Monroe County Agricultural Society held their second annual fair on their beautiful fair ground, near Bloomington, Indiana, commencing on the 31st day of August, 1869, and continuing five days. We take great pleasure in saying that the fair was a success; the premiums were as large as any county fair in the State, and were all paid in full. The display of agricultural and mechanical implements, grain and vegetables, was very fine. Domestic manufactures, as well as Floral Hall, was well represented by the hand of the ladies, in the display of needle embroidery and millinery work.

The number of entries made during the fair was 516; total receipts of fair, $2,291 25; total amount paid in premiums, $1,485 50; expense of fair and improvement on grounds, $806 00.

The society has built a new mechanics hall, seventy-five more new stalls, and a large dining hall. The society is clear of debt.

M. L. SNODGRASS, *Secretary*.

MARION COUNTY.

To the State Board of Agriculture:

The Marion County Agricultural and Horticultural Society held its annual exhibition of small fruits on the 12th day of June, 1869. This display has never been equaled. Our fruit committee made the following awards:

Best collection strawberries, John Weinberger.

Best one quart of Russell strawberries, J. D. Francis.

Best one quart of Jucunda strawberries, W. C. Hubbard.

Best one quart of Wilson strawberries, L. W. Hasselman.

Best one quart of green prolific strawberries, H. Mankedick.

Best one quart of Lening's white strawberries, John Weinberger.

Best collection of cherries, J. H. Vajen.

Best collection of currants, J. S. Dunlop.

Best collection of gooseberries, J. L. Wright.

Best seedling strawberry, John Weinberger.

This seedling was raised from the seed of the Jucunda or Noxe's Seven Hundred, which berry it resembles very much. The berry is of good size, between Wilson and Jucunda; the plants strong growers, good bearers, solid berries and good flavor. Bids fair to be a good market variety.

H. Mankedick exhibited some very fair seedling strawberries, rather soft for market.

PROF. GEO. B. LOOMIS,
J. H. VAJEN,
JUDGE E. B. MARTINDALE,
Committee.

OFFICERS OF THE SOCIETY FOR 1869.

I. W. HASSELMAN, President.
J. H. VAJEN, First Vice-President.
H. MANKEDICK, Second Vice-President.
D. V. CULLEY, Third Vice-President.
J. T. FRANCIS, Secretary.
W. S. HUBBARD, Treasurer.

The society holds weekly meetings during the fruit season, at their rooms, on every Saturday afternoon, when the members bring fruits of the season, to compare one with another, and for examination and report. In this way, the members become familiar with all the different varieties grown in this region.

The members made several fine exhibitions this summer and fall in pears, peaches, apples and other fruits.

The annual election of officers occurs on the third Saturday of January of each year.

J. T. FRANCIS, *Secretary.*

ADDENDA REPORT FOR 1869.

It has frequently been asked why it was, that this county did not support really a first class agricultural society. The reason is obvious: The State fairs for the most part being held at the capital, utterly preclude the holding of county fairs during the years in which the State fair is held here; and so cripples our home organization that we cannot get up good exhibitions when the State fair is held elsewhere—in other words, all the interest in this direction is absorbed by the State annual exhibitions, and toward making these no complaint can be entered against us; for Marion does her full share. The enterprise of her citizens utterly preclude the possibility of a State fair failure when it is held in our county.

By reference to your entry books and the lists of premiums awarded since the organization of your Board, it will be found that we have done our full share in the way of making an exhibition for the people to study and look at. Not only this, but our citizens have contributed liberally in donations of money *every year that the State fair has been held here*, of from one to five thousand dollars, commencing with

1852.	By subscription paid..................	$1,200 00
1853.	Fair at Lafayette, a success.	
1854.	Fair at Madison, a failure.	
1855.	Indianapolis, a success, paid subscription,	1,490 00
1856.	Indianapolis, a success, paid subscription,	1,000 00
1857.	Indianapolis, a success, paid subscription,	1,370 00
1858.	Indianapolis, a success, paid subscription,	1,120 00
1859.	New Albany, a failure.	
1860.	Indianapolis, a failure, paid subscription, to improve fair ground..............	5,000 00
1861.	War and no fair.	
1862.	Indianapolis, a success, paid subscription,	1,800 00
1863.	Indianapolis, a success, paid subscription,	1,720 00
1864.	Indianapolis, a success, and sanitary fair, paid subscription....................	1,560 00
	(Receipts sanitary fair, $45,000.)	
1865.	Fort Wayne, a success.	

1866.	Indianapolis, a success, paid subscription,	1,300 00
1867.	Terre Haute, a success.	
1868 and 1869.	Indianapolis, both successful, paid subscription, $8,386.95; appropriated by the City Council, $3,000*	11,386 95
	Total	$28,946 95

Making a total donation of $28,946 95 from private citizens of Indianapolis, less $3,000, being the City Council appropriation of 1868. We do not claim these figures as correct in every instance, but they are not far from accurate.

Then, again, with the rapid increase of our population, the multiplication of our manufactories and commerce, a State fair held here, under proper management cannot be a failure. Yet there is no disguising the fact that there exists, over almost the entire State, a petty jealousy, a pretended dislike of the capital and her institutions. This is clearly apparent with the State legislature, and we have feared that a cropping out of the same improper and unjustifiable feeling existed with some of the members of your Board.

Indianapolis is the property, as a capital, of the whole State, and every Indianaian should feel a just pride in her advancement. Build her up and leave the pulling down business to more unworthy hands.

To be sure, it costs more to stay here for a few days at a hotel or boarding house; and during public occasions, when the city is overrun, accommodations are not as ample as we could wish them, and we cannot make you so comfortable as you must be in your *happy rural homes* at or near the county seat; but we hope soon to be able to make fine advances in the way of hotel accommodations. Then, again, we beg our agricultural friends to bear in mind a few figures, compare them with your home markets, and see whether you should be kept here as cheaply as at your county inn. The item of butter has cost us during the last fifteen years from thirty-five to sixty cents per pound. For two weeks before, during, and after a large gathering of the people, even these rates are advanced, and this is also true of beef—twenty to twenty-five cents for the best cuts; eggs, during the autumn and winter months, forty to sixty cents per dozen. Now, friend from the country; you that complain of prices here, and charge our beautiful city of being composed of a set of sharpers, over-reachers and cut-throats, we beg you to exercise a little common sense and liberality of judgment, before we are utterly condemned.

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*See Report of 1868, page 76.

Marion county has rapidly advanced, especially in the mechanic arts and fruit growing, during the last fifteen years, and this marked increase is largely due, first, to the fact that we are the railroad center, at least of the Northwest, if not of the Union; second, that strangers calling here to attend your annual State fairs, and upon other public occasions visiting the capital, have observed our natural advantages and at once avail themselves of these inviting prospects, and have invested their capital here in manufactories and wholesale trades of various sorts. Thus Indianapolis is now a very important manufacturing city, and her wholesale trade, for a city of our size, is no meager affair; in other words, a better trade than can be successfully claimed by any other city of our population in the Union; and this trade is mainly due to our railroad facilities.

Through the kindness of our assessor of internal revenue, for this district, Colonel William M. Wiles, we are enabled to back our assertions by the following figures:

UNITED STATES INTERNAL REVENUE,
ASSESSOR'S OFFICE, SIXTH DISTRICT, INDIANA,
INDIANAPOLIS, December 14, 1869.

FIELDING BEELER, ESQ.,
Secretary State Board of Agriculture:

DEAR SIR—As requested, I have the honor to transmit herewith a report of the gross amount of manufactures of the city of Indianapolis, from October 1, 1868, to September 30, 1869, as shown by the records of this office:

Agricultural implements	$410,050
Furniture	347,814
Iron manufactures	331,963
Leather	95,047
Linseed oil	217,999
Harness	19,243
Carriages	134,201
Cotton goods	60,767
Woolen goods	110,639
Pianos	28,394
Lumber, (estimated) manufactured	250,025
Saws	78,085
Sash, doors, and blinds	80,536
Books	96,706
Barrels	42,000
Clothing	261,146
Starch	41,624
Articles not enumerated	104,286
Total	$2,710,525

This does not include several hundred manufacturers who produce less than $5,000, and it will be safe to estimate the aggregate manufactures of this class at $500,000. Adding this to the total manufactures reported, gives a total of $3,210,525.

Very respectfully,
Wm. M. Wiles, *Assessor.*

In the matter of agricultural advancement we cannot refer to facts and specifications, but are fully sustained in claiming a healthy advance. The city affording a ready market has induced a large portion of our cultivators to adopt gardening as a business, rather than grain growing; this change in programme has in most cases inured to their benefit.

We are sadly in need of dairy products—good butter and cheese here finds a ready sale, the market being but partially supplied; good butter finding consumers the year round, on contract, at fifty cents per pound, while the combination article, "cart grease, stale buttermilk, hairs dotted with occasional flies," appears to be no drug at thirty-five cents. There is, however, a marked advance in the quality of this valuable table luxury (good butter) as compared with years gone by.

In the matter of horticulture, our present, as compared with ten years ago, is a most happy result. Through the instrumentality of this society, the State Horticultural Society, and the State fairs (for they are all ours to look at and be instructed by) we have made great progress. Ten years since it was the exception to find any good fruits in our market; now the most fastidious may be supplied at the drawers of our friends, H. Mankedick, W. L. Hasselman, John T. Francis, John S. Dunlap, Weinberger & Ragan, H. Weghorst, William S. Hubbard, and a score of others. This is true specially of all the small fruits. In this locality, owing to the destruction of trees by sudden changes of temperature, we have not derived satisfaction, much less sufficient to pay for the thousands of peach trees that have been planted in our county.

The cultivation of pears has and is giving satisfaction by the excellence of the fruit, the success attending their cultivation, and more especially for their *intrinsic value.* Our experience is that this department of fruit growing is more reliable than any other. The trees of our best and most productive varieties are as hardy as the apple, while the failures of the crop upon well developed trees of the former are less frequent than with the latter. The old threadbare theory of "planting pear trees for our children" has long since been found wanting in practice. Cases are not wanting, where this fruit succeeds, with fair cultivation, to prove the utter fallacy of this old theory. It is the universal record, also, that the leading varieties, as Bartlett, White Doyenne, Sheldon, Louise Bonne, Belle Lucrative, and a few varieties, bear fruit as early and as abundantly upon the pear root as upon the quince. Certainly the standard trees are most desirable. They thrive in all soils, with fair cultivation, while the dwarfs on quince must be constantly petted, nursed with motherly attention, cut back, pinched in, dunged in the hill; and, finally, with all of one's pains, die in a night with some malady, called "fire blight," "sap blight," "grub at the root," or some other *unknown* disease. Cases in our country are numerous where well selected standard trees, planted from four to eight years since, are now in full bearing, producing from one peck to a bushel or more per tree, annually, of the finest fruit. With the annual growth of the trees and a corresponding increase of product these orchards will soon prove remunerative. Some of our cultivators, as William S. Hubbard, Esq., Judge E. B. Martindale, J. H. Vagen, John S. Dunlap, and others, have of late years violated one of the well established rules of landscape gardening, and planted standard pear trees in their beautiful lawns. These trees have succeeded admirably, and we are sure that their *Lawn Standards*, as we have seen them, bending under their loads of beautiful pears, carried with them "fit offerings for the king," and yielded somewhat of a revenue to the growers and pleasure to all observers. This unusual means of providing one's self with a pear orchard in the lawn, is reducing pleasure ground, which is understood as a "mere beauty to behold," to a *Belle Lucrative* indeed, a happy combination that cannot be overdone by him who cultivates his city lot, or the farmers of "broad acres."

Respectfully submitted,

Jno. T. Francis, *Secretary*.

MONTGOMERY COUNTY.

CRAWFORDSVILLE, Ind., Nov. 18, 1869.

To the State Board of Agriculture:

The Montgomery County Agricultural Society held its annual election of officers the first Saturday in April. The officers were elected for 1869:

OFFICERS.

DAVID ENOCH, President.
SAMUEL GILLILAND, First Vice-President.
JOHN REMLEY, Second Vice-President.
A. W. LEMMON, Secretary.
JAMES HEATON, Treasurer.
LABAN HOLLAND, Superintendent.
J. N. McCONNELL, Marshal.

It is controlled by a board of seventeen directors, divided among the townships. Its general business is directed by five committees, viz: executive committee, committee on printing, committee on premium list, committee on fair grounds, and finance committee. For the two previous years the premiums have been paid in silver ware, but this year cash premiums were adopted.

The fair was held October 4, 5, 6, 7 and 8, and was a decided success. Monday and Tuesday were cold and unpromising, but the balance of the time was fine. The display was, in every department, very fine, except in the agricultural, and that was as good as could be expected from the lateness of the season, and after so severe a frost and freeze as had happened a few days previous, which interfered very much with the vegetable display, and almost annihilated the floral. The live stock display has never been equalled here in quality or number. The mechanical was a splendid exhibition, showing increased interest in that department, reflecting the highest credit on the ingenuity and handicraft of our section of country. The miscellaneous was full, rich and varied, showing that the competitors not only tried nobly to excel each other, but also to invent a hundred and one things for which a premium had never been offered, and of which nobody but the manufacturer had ever dreamed. The number of entries was 849; total premiums paid, $1,023.

The old debt of last year, nearly $400, was paid off. The premiums were all paid. The expenses of this year were also promptly paid, and the society stands before the public claiming their respect and fearing not their censure, with success inscribed upon its banner.

Respectfully yours,

A. W. LEMMON, *Secretary.*

MORGAN COUNTY.

The Secretary of the Morgan County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

J. E. BURTON, President.
ELI HARY, Vice President.
J. W. GREGORY, Treasurer.
J. J. GRAHAM, Secretary.

The Morgan County Agricultural Society held its eighteenth annual fair on their new and beautiful grounds, half a mile west of Martinsville, commencing September 7, and ending September 11, 1869. In consequence of wet weather last year, and the society being compelled to pay only fifty cents per dollar on premiums, our fair did not prove a success. The society has leased fourteen acres of ground for a term of ten years, and have erected three nice and commodious buildings for fair purposes. We are considerably in debt, but consider that we are in a healthy condition. The total receipts of fair for 1869 were $1,889.90. The expenditures on improvements and premiums were $3.539.90. We expect to come out next year with flying colors.

Respectfully,

J. J GRAHAM, *Secretary.*

MARSHALL COUNTY.

The Secretary of the Marshall County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

JOSEPH WESTERVELT, President.
JOHN R. HUNT, Vice-President.
WILLIAM H. SIMONS, Treasurer.
W. H. COUGER, Secretary.

With a Board of Directors consisting of two citizens from each township.

The information at my command is so limited that it is impossible for me to furnish such a report as you probably desire.

Whole number of entries in all classes............	328
Total amount of premiums offered...............	$642 50
Total amount of premiums awarded and paid....	265 00

The products of Marshall county consist principally of wheat, buckwheat, corn, oats, rye and potatoes, the latter in large quantities. Fruit also succeeds well.

Farmers generally report stock in fine condition, increasing in number and improving in quality.

There is a great lack of interest evinced in agriculture in Marshall county. The thing must be brought squarely before the people and they made to see before our society can succeed.

Our fair, held on the 23d, 24th and 25th days of September, was not a success. It was poorly attended, owing, somewhat, to the inclemency of the weather and the unfavorableness of the season. The number of entries and articles on exhibition were comparatively few, but almost all articles possessed merit.

The society own fifteen acres of land, nicely situated half a mile north of Plymouth. The society is in debt a small sum on their improvements, but it is to be hoped that this will soon be canceled.

Respectfully,
W. H. Couger, *Secretary*.

MARTIN COUNTY.

The Secretary of the Martin County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

Daniel R. Dunihue, President.
George Styles, Vice-President.
Fred. L. Prow, Treasurer.
James C. O'Brien, Secretary.

The Martin County Agricultural Society held its first annual fair commencing on the 21st and closing on the 24th day of September, 1869, in which the citizens of the county took great interest, placing articles on exhibition and attending during the whole time.

At the first organization of this society, scores of our people withheld their influence from it, saying that an agricultural society could not be sustained in the county, etc. But now, through the untiring energy of its early and later friends, all are free to admit that it is a great success, and is now permanently established as one of the indispensable institutions of the county.

Our grounds are finely located near West Shoals, and the tract (twenty acres) inclosed, partly with a hedge and partly with a good plank fence. We have good halls, time track and such things as are necessary to hold a fair. We have paid all our premiums, expenses, etc., in full, leaving a small balance in the treasury. A great interest is being manifested in agriculture and the improvement of stock.

JAMES C. O'BRIEN, *Secretary.*

NOBLE COUNTY.

The Secretary of the Noble County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

JONATHAN SIMMONS, President.
ORLANDO KIMMEL, Vice-President.
HENRY SHOBE, General Superintendent.
LEVI KEISTER, Treasurer.
E. B. GERBER, Secretary.

And two Trustees from each township, under whose auspices the fourteenth annual exhibition of said society was held on their beautiful grounds, at Ligonier, on the 6th to the 8th of October, 1869.

The weather being favorable, the fair was a decided success. The number of entries in all classes was larger than on any previous year. The display of live stock was particularly good, as a large proportion of cattle were thoroughbreds whose pedigrees are recorded in the American Herd Book.

The mechanical, vegetable, floral and miscellaneous departments were all well represented, and the display in each reflected credit upon the exhibitors for their energy, skill and interest manifested for the welfare of the society. Everything passed of quietly and pleasantly.

Total receipts were	$813 00	
Amount of premiums and contingent expenses paid out	610 00	
Leaving a balance in the treasury of	———	$203 00

Respectfully submitted,

E. B. Gerber, *Secretary.*

POSEY COUNTY.

To the State Board of Agriculture:

The undersigned, Secretary of the Posey County Agricultural Society, would respectfully submit the following report of the eleventh annual fair, held at New Harmony, September 14th to 17th, 1869:

OFFICERS.

Prof. E. T. Cox, President.
J. D. Owen, Vice-President.
A. E. Fretagert, Treasurer.
F. D. Bottom, Secretary.
L. A. Burke, General Superintendent.
John R. Hugo, Marshal.
John Kilbinger, Chief of Police.

Trustees—V. C. Duclos, Otis Hinkley and B. A. Wilkerson.

The following is the number of entries made and the amount of cash premiums awarded and paid: Number of entries nearly one thousand. The receipts of the fair from all sources amounted to about $3,200. There was a cash balance on hand June 1st of $318. So that, after paying premiums and expenses of conducting the fair, and expending $600 in improvements and repairs, there will be in the treasury about $700.

The eleventh fair has proved the most successful that the society has ever held, not only in the increased attendance of visitors, but in the improved quality of animals and articles exhibited, the great interest manifested by exhibitors, as well as the public generally. Had it not been for a steady rain on Tuesday, (the first day of the fair,) there would have been many more entries made, as persons from a distance were prevented from bringing stock and articles. There was consequently very few visitors, and the exhibition was postponed until the next day. Wednesday morning dawned clear and pleasant, with a very good attendance. Thursday, the third day, was also pleasant, and the attendance was greater than on any one day at any previous fair held by the society, the number being estimated at ten thousand. Friday, the last day, was equally fine, and the attendance almost as great as on Thursday. Everything passed off satisfactory to all concerned.

At the close of the fair on Friday evening, the Board of Directors granted the use of the grounds to the New Harmony brass band, for the purpose of holding a fair on their own account, to raise funds with which to purchase new instruments, and on this short notice they realized nearly three hundred dollars, by giving small premiums for foot-racing, and other sports, charging twenty-five cents admission. All of which is respectfully submitted.

F. D. BOLTON, *Secretary.*

PUTNAM COUNTY.

The Secretary of the Putnam County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

R. M. HAZELETT, President.
E. D. ANDERSON, Vice-President.
THOS. H. STEVENSON, Treasurer.
D. C. DONNOHUE, Secretary.

The undersigned, Secretary of the Putnam County Agricultural Society, respectfully reports that we held our second annual fair since 1862 September 14th to 19th inclusive. In many respects our last fair was a complete success. In the stock department the exhibition was pronounced by all, one of the finest ever held in the county. In fact, ours is a stock growing county, and is becoming more so every year. All of our upland is so well adapted to blue-grass that our farmers are turning their attention from grain to stock. Though our land produces all the grains and vegetables to perfection, as the exhibition at our county fair fully proved, and one of our farmers was awarded three premiums on corn at the last State fair, yet the large number of fine cattle, mules, horses, and sheep which are shipped from this county every year, are prepared for market principally on blue-grass. Our farmers buy stock to graze largely from other counties, especially cattle and mules.

The number of entries at our fair, six hundred and eighty-five, will show the interest taken by this and neighboring counties in agriculture, mechanical arts, and kindred subjects. We charge ten per cent. of the premiums offered for the privilege of exhibiting, and pay all premiums in cash. Our cash payments for premiums amounted to about two thousand dollars. The aim of the society is to invest the entire proceeds of our fairs in improving our grounds and paying premiums; and for the purpose of improving our fairs socially, we hope in the future to be able to admit all articles, of every description, exhibited by the ladies without the payment of any fee, and take this occasion to thank them for the liberal patronage they have already extended to us.

Our total receipts were $2,473.90, as follows:

Entry fees	$ 354 50
Sale of tickets	1,917 90
Eating stands, etc	121 50

as shown by the books of the Treasurer:

All of which is respectfully submitted.

D. C. Donnohue, *Secretary.*

PARKE, PUTNAM, CLAY AND VIGO DISTRICT.

To the State Board of Agriculture:

The Secretary of the Bridgeton Union Agricultural Society submitted the following report:

OFFICERS.

James N. Miller, President.
G. W. Archer, First Vice-President.
Able Ball, Second Vice-President.
James Crook, Treasurer.
Dempsey Seybold, Secretary.

The society, composed of the counties of Parke, Putnam, Clay, and Vigo, held their eighth annual fair on their grounds, at Bridgeton, Parke county, commencing on the 30th of August and closing on the 4th of September. The fair was the best that has been held on the grounds since its organization. The weather was fine during the fair. The farmers are beginning to see the good results of agricultural fairs, and are taking an active part in sustaing them. The prospects of our society for the future are very promising.

Number of entries	824
Amount of receipts	$1,450 00
Expenses	1,420 00
Balance	$30 00

Dempsey Seybold, *Secretary.*

PARKE COUNTY.

The Secretary of the Parke County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Parke County Rural Institute held its semi-annual exhibitions on the 11th and 12th of June, and the 9th, 10th and 11th of September, 1869.

OFFICERS.

JOHN PICKARD, President.
JOEL REYNOLDS, Vice President.
H. B. LITTLE, Corresponding Secretary.
KERSEY NEWLIN, Recording Secretary.
IRA NEWLIN, Treasurer.
HARLAN NEWLIN, General Superintendent.

The society's fair grounds are situated near the village of Bloomingdale, containing commodious halls, stalls for cattle and horses, Secretary's and Treasurer's offices, etc. It has been the object of the society to make its exhibitions attractive to the farmer, the mechanic and the horticulturalist. Our constitution prohibits all shows, auction stands, and gaming of any kind, and we think we have fully tested the practicability of conducting fairs successfully without any of these customary appendages. Our society is out of debt, and has a small balance in the treasury.

H. B. LITTLE, *Cor. Sec'y.*

RUSH COUNTY.

The Secretary of the Rush County Agricultural Society submitted the following report:

RUSHVILLE, Nov. 10, 1869.

To the State Board of Agriculture:

The Rush County Agricultural Society held their thirteenth annual fair at their grounds near Rushville on the 14th, 15th, 16th and 17th of September last.

OFFICERS.

T. N. Link, President.
Jacob Daubenspeck, Vice President.
J. R. Mitchell, Treasurer.
E. Payne, Secretary.

The number of entries in the several classes were as follows:

Live stock	296
Farm and dairy products	296
Farming implements, etc.	56
Ladies' department	240
Miscellaneous	108
Total	996

This society, in its present organization, is by one hundred and ninety-six stockholders at ten dollars each, when the books for stock were closed. The stock was made transferable, and now readily commands twenty-five dollars per share whenever offered on the market. This tells the tale of the society's standing. Stockholders' families, except males over twenty-one years of age, are admitted free during the fair, yet our receipts were over four thousand dollars. The fair ground is situated one mile east of Rushville, containing over eighteen acres immediately beside the Junction railroad, whose cars render every facility that visitors desire or the society asks. The grounds seem by nature designed for the purpose, and, with the improvements already on hand, make it the pride of Rush county, as well as a popular resort of a fair-going community both far and near, and a frequent resort for picnics from cities on the line of our railroad.

Additional and permanent halls have been added the present year at a cost of over one thousand dollars.

Liberal premiums were awarded and paid in every class. The society owns its grounds, is out of debt, with a surplus in the treasury, and has the good will and best wishes of all our citizens for its future prosperity. With all these surroundings there is nothing but a high and prosperous destiny awaiting us.

E. PAYNE, *Secretary.*

ST. JOSEPH COUNTY.

The Secretary of the St. Joseph County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

A. N. MILLER, President.
JAMES DUNN, Vice President.
JOSEPH R. MILLER, Secretary.
T. P. BULLA, Treasurer,

Executive Committee.— A. N. MILLER, J. R. MILLER, T. P. BULLA, WM. MILLER, Esq., C. G. TOWLE.

The seventeenth annual fair of the St. Joseph County Agricultural Society was held October 7, 8 and 9, on their beautiful grounds adjoining the city of South Bend.

Number of entries	620
Total receipts from all sources	$731 70
Amount of premiums awarded	552 50
Amount of expenses to date	141 05
Amount of premiums and expenses	693 55
Balance in treasury	38 15

The result of the fair, although not large, was quite satisfactory to the members of the society. A lively interest is being manifested among the farmers, mechanics and manufacturers of the county. Had it not rained the last day of the fair our receipts would have been much larger.

JOSEPH R. MILLER, *Secretary.*

SULLIVAN COUNTY.

The Secretary of the Sullivan County Agricultural Society submitted the following report:

To the State Board of Agriculture:

In December, 1868, the following officers were elected to manage the interests of the society, to wit.:

OFFICERS.

FERDINAND BASLER, President.
N. G. BUFF, Vice-President.
C. TAYLOR, Secretary.
L. STEWART, Treasurer.
JOHN GILES, General Superintendent.
I. M. BROWN, Corresponding Secretary.

The Sullivan County Agricultural Society was reorganized and placed on a permanent stock basis on the sixth day of June, A. D., 1868. The society leased about twenty acres, one mile north of Sullivan, Indiana, and enclosed the same with a substantial oak fence, and made such improvements as would enable them to hold a fair in the fall of that year. The fair was well patronized by the people of the county, and sufficient interest exhibited in the matter to justify the conclusion that by proper management the undertaking might be carried to a successful result—beneficial to the people of the whole country, improving horses, cattle, hogs, the management of farming, elevating the standard of that great interest to the high position it deserves to occupy, and at the same time profit those who might risk their time and means in an enterprise of this character.

The fair of this year was held on the 6th, 7th, 8th, 9th and 10th days of September. The society, although involved to a considerable extent, from the expenditure of a much greater sum of money than was realized from the fair of 1868, went to work actively in making all the necessary improvements to enable them to present a pleasant, convenient, and comfortable arrangement for the accommodation of visitors and exhibitors. Two hundred stalls for horses and cattle were erected, the time track was put in good order, a track for the exhibition of cattle and horses, for general purposes, was also arranged, and each of these was inclosed with a neat fence. The society was enabled to do this through the energy and public spirit of several prominent citizens, who came forward and took sufficient stock to guarantee the success of the enterprise. Several gentlemen proposed to furnish the material and erect an amphitheatre, on certain conditions, and an arrangement was finally made, and a large and commodious amphitheatre erected, which proves profitable to the parties, valuable to the society, and an ornament to the fair grounds. Thus the fair grounds, which are favorably and beautifully located, are now handsomely and substantially improved. The people in our own county took a lively interest in the fair, and it was largely attended by parties from surrounding counties.

We have enterprising and far-seeing farmers and business men among our population, and many of them have become deeply interested in the success of this great enterprise. John Giles, Esq., F. Basler, Esq., Dr. S. S. Coffman, Caleb B. Snapp, Esq., and others, have showed their interest in the development of the vast resources of our county, and in order to afford our people the opportunity of having good stock of every kind, have done much to give it substantial encouragement. John Giles, Esq., went to Lexington, Kentucky, and purchased at great expense several of the finest breed of short horned Durham cattle, a fine, thorough-bred stallion, and sent to Chester county, Pennsylvania, and purchased a pair of fine Chester white pigs; also imported from Canada a pair of fine Berkshire pigs. Dr. S. S. Coffman imported from Canada a pair of fine Berkshire pigs, and purchased some fine Alderney or Jersey cattle of Mr. Morgan, of Vanderburgh county, a celebrated stock raiser of this State. F. Basler, Esq., sent and purchased a pair of pure Chester white pigs, from raisers in Chester county, Pennsylvania. These valuable breeds of stock are now being introduced to the farmers of this county by the above spirited and enterprising gentlemen. Master George W. Basler communicated with gentlemen abroad who were engaged in importing and raising the finest and most valuable poultry, and purchased quite a number of the most noted varieties, which for variety, beauty, and service also, cannot be excelled. These were all on exhibition at our fair, and the beauty of the stock and their real fineness was the subject of comment by all who attended our exhibition.

Entries in the live stock department were very large. Visitors from other counties and states universally admired our stock department, and it was universally conceeded that the exhibition of horses for general purposes excelled anything of the kind that had been witnessed. Other departments were well represented, if not by the number of articles certainly the quaiity of the articles, and the taste displayed in their selection entitled them to great consideration.

The effects produced from this enterprising spirit are wonderful. Farmers are fixing up their farms and putting them in good condition. Neat, comfortable, and commodious buildings are being erected, and soon negligence will give place to comfort, neatness, and economical beauty. The stables of farmers of Sullivan county will soon hold as fine blooded horses as can be found in the country. The best and most profitable breed of hogs will be raised by every farmer, and the fine grass fields will be grazed by cattle and sheep of the choicest breeds to be obtained in this and other countries. These great results will be owing to the spirit of enterprise started, fostered, and kept moving by the Agricultural Department of the State.

The society procured the services of Hon. D. W. Voorhees and Colonel R. W. Thompson, who addressed the people on the great agricultural interests of the country and their mode of development, in the able, eloquent and popular manner peculiar to these distinguished gentlemen.

The total receipts of the society were.....	$4,224 13
The total expenditures..................	3,495 85
Leaving a balance of.................	$728 28

Of the above expenditures eleven hundred and forty-two dollars in cash were paid out in premiums. The remainder was spent in improvement of grounds and necessary expenses of fair. A dividend of twenty per cent. was declared on the capital stock, most of which has already been paid out, leaving a balance in the treasury of upwards of two hundred dollars. Our fair was a perfect success in every particular, and if properly supported by the people, in succeeding years, will be one of the best fairs in the State.

Persons having means now consider the stock of the society a safe and profitable investment, and it is much sought after.

F. BASLER, *President.*

Attest: C. Taylor, *Secretary.*

TIPPECANOE COUNTY.

The Secretary of the Tippecanoe County Agricultural Association submitted the following report:

To the State Board of Agriculture:

OFFICERS.

H. T. Sample, President.
Dr. S. Jones, Vice-President.
Sylvester Taylor, Treasurer.
Benjamin Ray, General Superintendent.
J. B. McCutchen, Secretary.

Executive Board—Hon. John Purdue, Dr. John Srinison, John L. Reynolds, Sam'l Allen, J. M. Boggs, Adams Earl, Taswell Johnson, and George Williams.

The Tippecanoe County Agricultural Association was organized in the year 1867. The present year we held our third annual exhibition.

Tippecanoe county has been, I am sorry to say, quite negligent in the way of county fairs, for the past few years, there having been none held in this county since 1856 until the present society revived it in 1867. The association leased a beautiful tract of land seven miles south of the city of Lafayette, on the Louisville, New Albany & Chicago Railroad, and also on the Southern Gravel Road, therefore the facilities for getting to the grounds from the city are good, the cost by rail being twenty-five cents. Our fair ground is beautifully situated—the railroad on one side and the pike on the other; a beautiful grove of young timber within the enclosure, and a fountain of clear, cold water, that is strong enough to supply six thousand cattle, if required. Notwithstanding all these advantages, a majority of the society deem it practicable, and intend, to fit up grounds nearer the city, next fall. There has been, in former years, a certain prejudice existing among farmers and country people against the city, the former having an idea that our fairs were governed too much by the city people; but that erroneous idea has at the present become very nearly eradicated, and my opinion is, when we get under way again, in the city, we will all work in union.

The fair for the present season was held on the 8th, 9th, 10th, and 11th days of September, and was a decided success, so far as people were concerned, but there was not that interest manifested by the farmers in the way of live stock, agricultural implements and the products of the soil that would have been desired by the association. However, under the leadership of our energetic and never-tiring President, H. T. Sample, assisted by his staff and Executive Board, we hope ere long to be able to make you a report of old Tippecanoe second to none in the State.

Total number entries	583
Amount premiums paid	$ 912 00
Receipts from all sources	1,702 00
Leaving a balance of	$790 00

Respectfully,
J. B. McCutchen, *Secretary.*

UNION COUNTY.

The Secretary of the Union County Joint Stock Agricultural, Horticultural and Mechanical Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

Eli Pigman, President.
A. F. Davis, Secretary.
W. M. Clark, Treasurer.

Directors—D. F. Drook, T. E. Paddock, Seth Kelly, S. E. Snyder, Nicholas Druley, Thos. F. Huddleston.

The Union County Joint Stock Agricultural, Horticultural and Mechanical Society was organized April 2, 1866, and immediately thereafter the society purchased twelve acres of land inside the corporate limits of the town of Liberty, which they fitted up in good order for a fair ground.

Our county, although one of the smallest in number of square miles in the State, nevertheless stands among the highest in point of wealth and general intelligence, and no county in the State exceeds it in healthfulness. The farms are generally productive and well improved, and all have an abundance of excellent timber and water. Our farmers take a great deal of interest in the improvement of live stock of all kinds, but more particularly in horses and hogs, and in this regard we stand second to none in the State.

The fourth annual fair of the society was held October 12th, 13th, 14th and 15th, 1869, and was well attended by the citizens of our own and adjoining counties, it being the largest attendance that we have ever had at any of our fairs. The following number of entries were made:

Horses	142
Jacks and mules	12
Cattle	41
Swine	46
Sheep	36
Mechanical, miscellaneous, etc	583
Making a total of	863

The receipts amounted to	$1,708 00
Total amount of premiums paid	1,100 00

The wheat crop harvested the present year was the largest ever raised in the county. The corn crop is very short; far below an average, owing to the cold, wet weather in May and June and to the depredations of the grub, which destroyed many fields, and but few entirely escaped its ravages. Oats, barley, rye, flax seed, and hay, an average crop. Pototoes, a large yield. Fruits, of all kinds, above an average in quantity and quality.

Respectfully,
A. F. Davis, *Secretary.*

VIGO COUNTY.

The Secretary of the Vigo County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Officers and Directors of the Vigo Agricultural Society for the year have been:

OFFICERS.

C. W. Barbour, President.
Silas Price, Vice President.
Joseph Gilbert, Secretary.
Alfred B. Pegg, Treasurer.
John E. Ferrel, Gen'l Sup't.

Directors.—Cory Barbour, Thomas Dowling, Thomas McColloch, Thomas C. Pugh, Hiram Smith, Henry D. Scott, John Weir.

The fourth annual Fair of the Society was held on the fourteenth, fifteenth, sixteenth, seventeenth, and eighteenth days of September. The first day was rainy and unpleasant, but the remainder were pleasant as could be wished.

The number of entries in the several departments were as follows:

Live Stock Department	167
Agricultural Department	179
Mechanical Department	90
Miscellaneous Department	189
Total	625

The amount of premiums offered was two thousand dollars. The amounts paid were as follows:

Live Stock	$670 00
Agricultural	449 00
Mechanical	169 00
Miscellaneous	211 00
Total	$1,499 00

Also, a number of diplomas and complimentary notices.

The receipts and expenses of the Fair proper were as follows:

RECEIPTS.

Gate Fees	$939 05	
Entry Fees	418 20	
Rent of Stands	75 50	
Licenses from auctioneers, &c.	26 25	
From sundry persons, spec'l prems	55 00	$1,514 00

EXPENSES.

Cash premiums paid	$1,447 00	
Police Supt's labor, &c.	180 10	
Printing bills	109 55	$1,736 65
Balance		$222 65

Other receipts from our grounds to the amount of four hundred and fifty dollars for rent of track, hay, pasture, &c., and the county license fund, one hundred and ten dollars, helps to place the balance upon the right side.

We have so far paid all our premiums in full; but owing to the fact that each year the Fair has failed to pay, and the Society has had to draw upon other resources to pay the premiums, there is at this time quite a strong feeling in favor of the *pro rata* system.

We would like to have your honorable Board suggest to us some plan of action by which we can give satisfaction to all, especially to those who fail to get premiums.

As at present managed, the Directors and Officers have a thankless task to perform. They are targets for abuse from all sides. If they give a premium for horses and fast going, they are denounced by a large class who are opposed thereto. If no premiums are given, the people who are in favor of racing denounce us; if we try to steer between by giving small premiums, we draw the abuse of the whole community.

We find that almost every person who exhibits and fails to get the premium, goes away dissatisfied, and in most case the managers get the blame.

If one exhibitor places small potatoes on the half bushel of selected ones of another; if one person soaks his lima beans so that they are larger than his neighbors; if, in the ring, one exhibitor places his brood mare so that the committee can not see his competitor's colt; why, of course, the managers get all the blame, and are denounced for it. If the Director, who are usually largely interested, and exhibit a great deal, happen to take premiums, there is a large class who say they ***had it all set up***, and they ***knew who would get them.*** And so on, ***ad infinitum.*** What can we do?[*]

The past year has been a prosperous one for Vigo county. The wheat crop has been very good, probably an average of twenty-one or twenty-two bushels per acre, our premium field of ten acres averaged forty and one-half bushels per acre. On the prairies and in most of the vallies, the corn was very good; along the river there was a good deal drowned out, and also in the flat, undrained parts of the county. Hay, oats, and barley were good. The potato crop was good, but the freeze of October destroyed a great many; some were heaped in the fields, and not sufficiently covered. In many places one-fourth were destroyed in the ground.

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[*] NOTE.—Take their jeers; do your duty, and go ahead, being sure you're right.—SEC.

Terre Haute and Vigo county are improving rapidly. Our proximity to the best coal in the country, and our advantage of location as the center of several lines of competing railroads, which free us from local freights, have attracted the attention of capitalists, and already the country is lighted up at night by the continual fires of rolling mills and foundries, and in a short time furnaces in course of construction will add to the flame, and soon thousands of men will find employment, and, with their families, will create a demand for all the products of the county.

JOSEPH GILBERT, *Secretary.*

TERRE HAUTE HORTICULTURAL SOCIETY.

The Secretary of the Terre Haute Horticultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

HON. H. D. SCOTT, President.
SILAS PRICE, Vice President.
E. J. BROWN, Treasurer.
JOHN G. HEINL, Secretary.

The Terre Haute Horticultural Society was organized in May 1865. We have held regular monthly meetings ever since which were generally well attended.

We adopt a regular question for discussion for the next meeting; the President also appoints a committee of one on the following subjects for written reports: On apples, grapes, strawberries and other fruits; vegetables, potatoes, flowers, birds, insects and cooking. These reports add greatly to the interest of our meetings.

Since the organization of this society, we have held seven exhibitions, always having our halls well filled, having a fine display of strawberries and flowers at all of our spring exhibitions. The first four exhibitions were pecuniarily successful, being new, our city people manifested more interest; at our last three, however, we came out short after paying off our premiums. We shall continue these exhibitions for our own benefit.

Last spring we rented rooms in the city to hold our monthly meetings, hoping to get the town people to meet with us and take more interest, but we find we cannot get the ladies nor the suppers there, and we have again retreated to the suburbs or country, and hold our monthly meetings at the houses of the different members, holding only one yearly business meeting in the city.

At present we have fifty-three members, including nine ladies. The average attendance is about twenty.

At a meeting of the Society on the first Thursday in November, 1869, the following preamble and resolution were adopted:

WHEREAS, it appears by the printed proceedings of the transactions of the Indiana State Board of Agriculture for 1868, under the head of premiums awarded, on page 118, as follows: "Best display of fruits of all kinds from any county, district or local Horticultural Society—Terre Haute Horticultural Society, $30, etc."

AND WHEREAS, this society has not in any manner authorised any person to receive said premium, nor has said premium or any portion of the same been paid to this society; therefore, *Resolved*, That the Secretary of this society call the attention of the State Board to this matter in his report, and that the State Board be requested to ascertain whether said premium has been paid, and to whom, and by what authority, if the same has been received by any person, and that said Board take such steps as will seem proper to correct said statement in its report, if improperly made, or acknowledge its liability to this society for the amount of said premium, if properly awarded and not properly paid over.

JOHN G. HEINL, *Secretary*.

WABASH COUNTY.

The Secretary of the Wabash County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

HEZEKIAH CALDWELL, President.
JOHN DAFTON, Vice President.
ALVAH TAYLOR, Secretary.
THEODORE J. RILEY, Treasurer.
JOSEPH C. CRAIG, Marshal.

Directors—Henry Comstock, William T. Ross, Freeman T. Tayler, Asa S. Ross, James M. Blew and Ralph G. Arnold.

The Seventeenth Annual Fair was held at the fair grounds in Wabash, on the 21st, 22d, 23d and 24th days of September, 1869. We again take pleasure in saying, that our fair was more than ever before a success. The receipts of the fair and the number of entries are gradually increasing. The exhibition of live stock was very fine. In some departments there were not so many entries as at former fairs, but the quality of the stock was much improved. The exhibition in the Agricultural and Domestic Department considerably exceeded in number of entries and the quality of the articles, any ever before held in this county.

The following is a statement of the number of entries, amount of awards, and the condition of the finances:

Whole number of entries	1,355
Total amount premiums paid	$1,512 25

RECEIPTS.

Amount on hand from 1868	$ 346 69
Receipts for 1869	3,919 08
Total	$3,365 77

DISBURSEMENTS.

Total paid premiums	$1,512 25	
Current expenses	617 63	
Total	$2,183 88	
Balance on hand		$1,181 89

The society is almost out of debt. There are some claims to be adjusted at the next meeting of the Board in order to fully close up the business of the present year, which cannot exceed three hundred dollars. There will be on hand about nine hundred dollars to carry forward to the next year.

With this prestige of continued successes through a series of years, we confidently expect success in the future.

The next annual election of officers will be on the third Saturday of December.

Respectfully,

ALVAH TAYLOR, *Secretary.*

WAYNE COUNTY.

The Secretary of the Wayne County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

Rankin Baldridge, President.
Jonas Yeo, Vice President.
John K. Jones, Treasurer.
Sylvester Johnson, Secretary.

The exhibition of the Wayne County Joint Stock Agricultural Association for 1869 was held on their ground at Centreville, October 5th to 9th, inclusive.

The weather was fine, and the number of entries and attendance of visitors far excelled any former fair held in this county.

RECEIPTS.

Received for single tickets, at forty cents each	$ 638 00	
Family tickets at $1.50 each	1,710 00	
Received for entries	353 75	
Received for rents, &c.	300 30	$3,002 05

EXPENDITURES.

Paid for premiums	$1,766 85	
Paid for police, band, &c.	295 00	$2,061 90
Rec'ts in excess of expenditures.		$940 15

All of which is respectfully submitted.

Sylvester Johnson, *Secretary.*

VERMILLION COUNTY.

The Secretary of the Vermillion County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

JOHN HENDERSON, President.
JACOB WEINSETT, Vice-President.
JOHN HEIGHFILL, Treasurer.
JAS. A. BELL, Secretary.
R. E. STEPHENS, Assistant Secretary.

The fifth annual fair was held on the society's grounds, near Newport, the county seat of said county, commencing September 28th and holding four days. The weather was favorable and the attendance large. The whole number of entries was two hundred and seventy-five, and we had a fine show in all of the departments. The cash receipts were near $1,500. The premiums were all paid, all repairs settled and a small balance is now in the treasury.

The society, since its organization, has been marked with success, and the interest of the farmers of our county has increased year after year, until now it has become one of the institutions of our county, which could not well be dispensed with.

JAS. A. BELL, *Secretary.*

WARRICK COUNTY.

The Secretary of the Warrick County Agricultural Society submitted the following report:

To the State Board of Agriculture:

In laying before you a report of the proceedings of the Warrick County Agricultural and Mechanical Society for the year 1869, I have the honor to state that the annual exhibition of the society was held near Boonville, commencing on Tuesday, the 12th day of October and terminating Saturday, the 16th, 1869.

Since the organization (thirteen years ago) of an agricultural and mechanical society, the efforts put forth and the success met with at that time, the untiring exertions by friends of the enterprise, the interest manifested by the community at each successive annual fair has in nowise, on any former occasion, produced such abundant proof of public favor, as did the fair which has just closed.

That the readers of this report may understand how the people in Warrick county appreciate the benefits accruing from well organized agricultural and mechanical societies, I will give a statement of the number of entries made and the amount of premiums awarded, to-wit:

	ENTRIES.	AWARDS.
Agricultural and mechanical departments	34	$55 00
Leather and leather manufactures	21	60 00
Shop	29	40 00
Home and domestic	122	145 00
Flowers and paintings	29	24 00
Garden and farm products	76	55 00
Fruits	37	24 00
Field crops	5	50 00
Table comforts	210	160 00
Horses (three classes)	133	295 00
Jacks, jennets and mules	21	55 00
Cattle (three classes)	29	95 00
Sheep (two classes)	17	42 00
Hogs (two classes)	19	53 00
Poultry	9	5 00
Speed rings—open to the world	7	200 00
County rings (untrained horses)	16	60 00
Miscellaneous department	213	159 00
Equestrianship (three classes)	16	18 00
In the various other ring performances, such as buggy horses, match horses and mules, horses for all purposes, etc., etc	52	110 00
Total	1195	$1,705 00

RECEIPTS AND EXPENDITURES.

Received on account of entry fees		$433 70
Received on account of huckster stands		374 00
Received on account of membership		1,260 00
Received on account of gate tickets		937 00
Total receipts		$3,004 70
Paid premiums	$1,705 00	
Paid incidental expenses	496 70	
		$2,201 70
Balance in the hands of Treasurer		$803 00

Financially, our recent fair was a complete success.

We have halls for the exhibition of home, domestic and shop manufactures, table comforts, horse and cattle sheds, swine and sheep pens, sufficient for the purposes of a fair. The society intend to adopt some needed improvements. Our most pressing necessity is an amphitheater. We are able now to build one that will accommodate five thousand people.

Our organization now numbers nearly six hundred and fifty members, who pay annually two dollars to perpetuate their membership. We have a beautiful fair ground, pleasantly situated, and so nearly in the center of the county, that it is easy of access.

During the last fair our society gave the members the benefit of a free ticket, which entitled the holder to one chance for a Wheeler & Wilson best sewing machine. The drawing was conducted by the directors, at the close of the fair. Walker J. McKinney, a farmer of this county, held the lucky ticket.

As one of the leading staples of this county is tobacco, our farmers are somewhat skilled in the cultivation of that plant. To give encouragement in this branch of industry, a liberal premium was offered for the best ten pounds, consisting of a set of beautiful silverware—a pitcher, beautifully engraved, two goblets and salver, presented by Martin, Gardner & Co., tobacco and cotton factors of the city of Evansville, for the best specimen of shipping leaf tobacco, weighing not less than five pounds. The silverware was awarded to our fellow citizen, John Jones, living near Booneville.

I cannot close this imperfect report without expressing, in some forcible manner, the high admiration, worthily bestowed, upon the skill and industry of our ladies. The great variety of plain and ornamental needle work, all the conceivable varieties of cróchet work and embroidery, fancy paintings and pencil drawings. The ladies deserve much credit for the interest they have always manifested, and the part they always take, in our annual exhibitions; and the officers and members acknowledge themselves under many obligations to them. We hope the commendable spirit of go-aheaditiveness, so prominent with them, may never slaken, but that they may do much to add life, beauty and excellence to our annual gatherings in the future, as they always have in the past.

By examining the abstract of county reports, as they are published in the Indiana Agricultural Reports, for the years 1867 and 1869, a gratifying result, to the citizens of Warrick county, can be found to exist, viz: That for the number of entries of articles for exhibition, which is the life-blood of a good fair, Warrick county stands at the head of the class. This surely speaks well for the thrift and enterprise of our people.

To say that we feel a pride on account of the almost unparalleled success of our agricultural and mechanical enterprise, is saying no more than is true. A local pride for our county and her institutions (prominent among which is our society) and the intelligence of her yeomanry, and an individual pride, in the knowledge of the fact that our efforts to develop the latent agricultural and mechanical interest of the county have been so abundantly crowned with success. Our society was never in a more flourishing condition; the county never more prosperous. Our farmers and mechanics are wide-awake to everything pertaining to their interest. The latest and most improved implements of husbandry can be found with almost all of our farmers. The march of events passes by only with the closest scrutiny.

To the farmer living in the "Pocket" the year eighteen hundred and sixty-nine is one to be long remembered, as it has been fraught with many blessings. A kind providence has favored us with most bountiful crops. The yield of the wheat crop is double that of any other season. The corn crops are excellent. The products of the garden, farm and field are truly encouraging.

Under auspices so favorable, we might reasonably expect, from an intelligent community, that an organization having for its object the development of the industrial resources of the county should be fostered as an institution worthy the consideration of all.

Respectfully submitted,

M. W. BENNETT, *Secretary.*

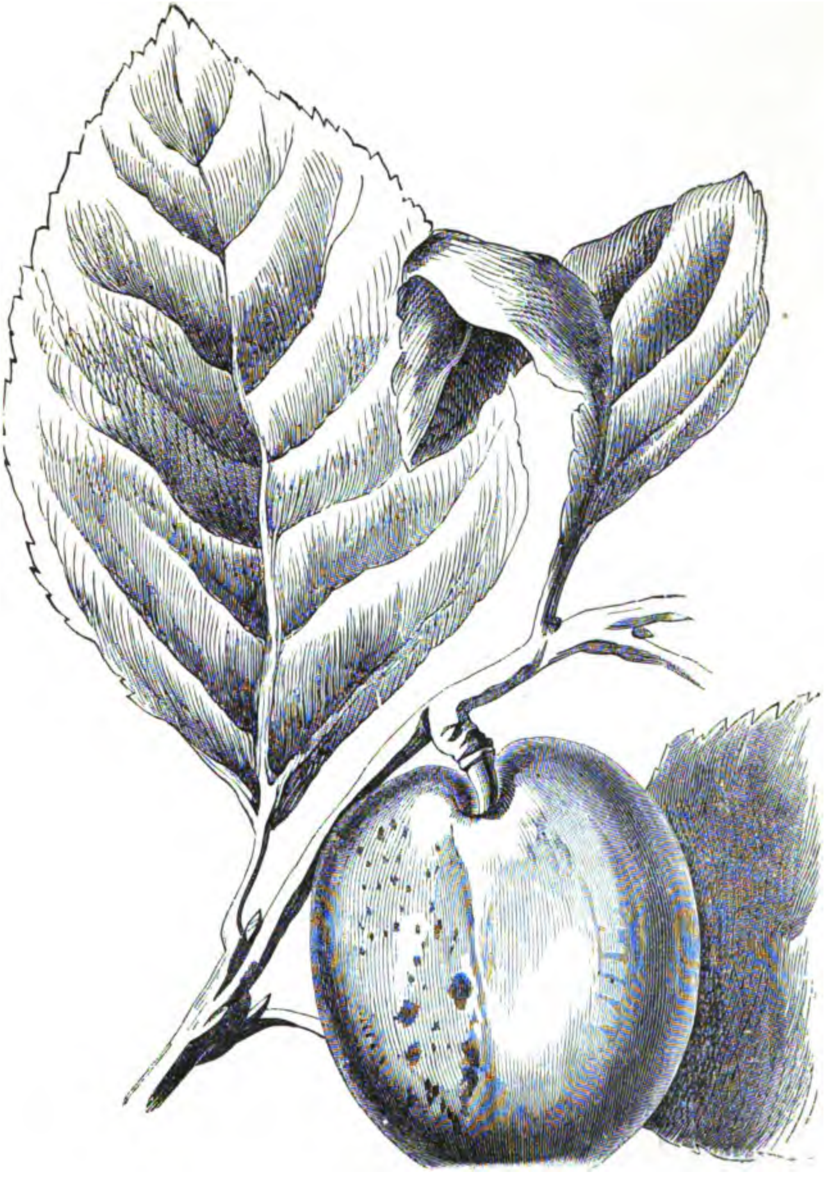
RECAPITULATION OF ABSTRACT REPORTS FOR 1869.

COUNTIES.	President.	Secretary.	Place of Fair.	Time of Fair.	Receipts.	Expenditures.	Entries.	REMARKS.
Boone		A. J. Boone	Lebanon	Oct. 5 to 8	$2,831 35	$ 830 97		
Dearborn		P. L. Matthews	Aurora	Sept. 13 to 18	1,452 90	1,013 60		
(Edinburg Union) Johnson	Harvey Lewis	W. N. Kyle	Edinburg	Sept. 21 to 27	3,262 05	3,008 27	834	In treasury $5,467 43
Fountain, Wa'en & Ver'llion Dist	Elias Schloser	I. Haupt	Covington	Oct. 5 to 8	1,700 00	800 00	538	
Fulton		Dan. Agnew						No fair.
Franklin		F. R. A. Jeter			1,327 36	1,311 00	1083	
Grant	Henry Shugart	D. P. Cubberly	Marion	Sept. 15 to 18	1,000 00	775 00		In treasury $725 00
Henry	S. T. Powell	John Burch	New Castle	Aug. 24 to 27	2,297 95	2,219 42	754	In treasury 78 53
Hendricks	Frank Haynes	John V. Hadley	Danville	Sept. 1 to 3	2,088 97	2,085 23	526	In treasury 3 74
Howard	S. J. Schooley	T. J. Council	Kokomo	Sept. 22 to 25	1,302 80	1,050 00	725	In treasury 352 80
Harrison	S. J. Wright	S. B. Luckett	Corydon	Sept. 7 to 10	1,899 60	1,765 62	451	In treasury 133 98
Johnson	C. Tarlton	C. Byfield	Franklin	Sept. 14 to 18	2,467 75	2,288 00	983	In treasury 179 75
Jackson	S. W. Holmes	L. M. Mains	Seymour	Sept. 14 to 18	7,106 40	7,100 00		In treasury 6 40
Laporte	W. A Place	E. L. McCullum	Laporte	Oct. 13 to 15	2,124 60	1,714 50	1008	In treasury 465 10
Lake	B. Woods	J. O Barnard	Crown Point	Oct 6 to 8	729 53	630 10	316	In treasury 99 43
Monroe	Jas. Small	M. L. Snodgrass	Bloomington	Aug 31	2,291 25	2,291 50	516	
Marion	L. W. Hasselman	John T Francis	No fair					Monthly exhibitions.
Montgomery	David Enoch	A. W. Lemmon	Crawfordsville	Oct. 4 to 8		1,423 00	849	
Morgan	J. E Burton	J. I. Graham	Martinsville	Sept. 7 to 11	1 889 90	3,539 90		In debt $1,650 00
Marshall	J. Westervelt	W. H. Conger	Plymouth	Sept. 23 to 25	642 00	265 00	328	
Martin	D. R. Donehue	J C O Brien	West Shoals	Sept. 21 to 24				
Noble	J. Simmons	E. B Gerber	Ligonier	Oct. 6 to 8	813 00	610 00		In treasury 700 00
Posey	E. T. Cox	F. D. Bolton	New Harmony	Sept. 14 to 18	3,200 00		1000	
Putnam		D. C. Donahue	Greencastle	Sept. 14 to 19	2,473 00	1,977 00	685	
Parke and others	J. N. Miller	D. Seybold	Bridgeton	Sept. 4	1,420 00	1,200 00	834	
Parke and others	John Pickard	H. B. Little	Bloomingdale	June 11 & Sept. 11			836	No finances.
Rush	T N. Link	E. Payne	Rushville		4,000 00		929	
St. Joseph	A. N. Miller	J. R. Miller	South Bend	Oct 7 to 9	731 00	693 85	620	In treasury 38 15
Sullivan	F. Basler	C. Taylor	Sullivan	Sept. 6 to 10	4,224 13	3,495 85	974	In treasury 728 28
Tippecanoe	H. T. Sample	J. B McCutchen	Near Lafayette	Sept. 8 to 11	1,702 00	912 00	583	In treasury 790 00
Union	Eli Pigman	A. F. Davis	Liberty	Oct 12 to 15	1,708 00	1,100 00	8 3	In treasury 608 00
Vigo	C. W. Barbour	Jos. Gilbert	Terre Haute	Sept. 14 to 18	1,514 00	1,736 65	625	In debt 222 65
Vigo (Horticultural)	H. D. Scott	Jno. G. Heinl	Terre Haute					No finances.
Vermillion	Jno. Henderson	James A. Bell	Newport	Sept. 28	1,500 00		575	
Warrick		M. W. Bennett	Booneville	Oct. 12 to 16	3,004 70	2,201 70	1195	In treasury 803 00
Wabash	H. Caldwell	A. Taylor	Wabash	Sept. 21 to 24	3,365 77	2,183 88	1355	In treasury 1,181 89
Wayne	R. Baldridge	S Johnson	Centerville	Oct. 5	3,002 05	2,061 90		In treasury 940 15

The foregoing abstract is as full as it could be made from the reports. If the officers of the county and district societies would give this matter their attention, it would greatly add to the value of these annual publications. We find by the reports of thirty-one counties, imperfect as they are, that they received sixty-three thousand and seventy-two dollars ($63,072.00), and paid out forty-six thousand five hundred and sixty-seven dollars and forty-nine cents ($46,567.49). Thus, could we obtain like or better reports from all the agricultural societies in the State, some idea could be formed of the vast good we are deriving from these organizations. While their finances are the motive power indispensable in such organizations, still the great good accomplished by them is in comparison of results, interchange of practical knowledge and experience of cultivators who are brought together at these fairs.

We have the receipts of twenty-five county and district societies, making an average of $2,522.88 per county, and nineteen thousand nine hundred and eighty-five entries made in twenty-six counties.

For 1868, forty counties receive $77,259.16, showing an average of $1,931.47; and sixteen thousand eight hundred and twenty-one entries in twenty-eight counties. Average receipts per society for 1869, $591.41 over 1868.



REINE CLAUDE DE BAVAY.

ABSTRACT

OF

COUNTY AND DISTRICT REPORTS

FOR 1868.

REPORTED TO THE BOARD JANUARY, 1869.

We have carefully examined these reports, and in many instances found corrections and changes necessary. For the most part they seem to have been made rather as a matter of form than for information. The reports of A. J. Boone, of Boone county, both for 1868 and 1869, are commended to the several secretaries of county societies for the information they contain, as well as scholarly productions.

They should contain, in brief, carefully prepared estimates of the agricultural products of the county, stock growing, manufactures, character of soil, timber, natural advantages, railroad facilities, in fact, such information as strangers would desire to possess concerning the county if they contemplated settling there. Gentlemen Secretaries, please attend to this matter in future. See published reports of 1868.—SECRETARY BOARD.

ALLEN COUNTY.

The Secretary of the Allen County Agricultural and Horticultural Society submitted the following report:

To the State Board of Agriculture:

The undersigned would respectfully report that this society was organized in the year 1853; that since that time the society has been increasing in its efforts to advance the interests of the farmers and mechanics of the county.

The society has ample rooms in our court house, where the members meet every Saturday for the discussion of such subjects as may have been previously announced, or which may be presented during the meeting, in which most of the members participate, and the subjects are so arranged that during the year almost every question of interest to the farmer, pomologist, or horticulturalist, are brought into the discussion, and the knowledge and experience of all the prominent cultivators of the soil are thus gathered for the information and benefit of the society.

Our annual fair and exhibition was held on the 25th and 26th of September, at which there was a good display of the products, etc., of the county, and a respectable attendance of those who usually attend such exhibitions, either for pleasure or information.

Our society has been pecuniarily a success, being out of debt and a few hundred dollars on hand.

Respectfully,

ADAM LINK, *President.*

F. P. RANDALL, *Secretary.*

BOONE COUNTY.

The Secretary of the Boone County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Boone County Agricultural Society held its annual meeting at Lebanon, on Saturday, the second day of January, 1869. Some miscellaneous business was transacted, and the election of officers for the ensuing year resulted as follows:

OFFICERS.

N. FORDICE, President.
L. LANE, Vice-President.
A. J. BOONE, Secretary.
A. ROBINSON, Treasurer.

Township Directors—Albert Parr, Eli Titus, George E. Conrad, Thomas Gregory, William Moore, Robert E. McCann, George Shoemaker, A. T. Lower, Daniel Witt, and Samuel West.

The society organized 22nd February, 1853, and the largest number of members from that time to the present was one hundred and seventy one. Many of these have removed from the county, have died, or have simply contributed the one dollar to make the membership, and then collapsed into a fearful state of quiet on the all absorbing influence of county societies. The live membership at present does not exceed forty persons, and they, many of them, have become from some cause sadly demoralized in the active duties of the society. It is but fair to state, however, that there are hopeful indications of a speedy return to praiseworthy industry in this behalf.

There has been no fair held by the society since 1860, when there seemed to be a lively interest in all things pertaining to the business of the society.

In the spring of 1861 the war broke out, and for a year or two so engaged the public mind that it was found impracticable to carry forward the business of the Society. Everything was therefore suspended for the time or overlooked in the excitement of the times.

In the fall of 1862 our lease expired on the grounds occupied for our annual fairs, and the landlord required the removal of the fixtures at once. This being done resulted in a serious loss to the society, and from which it was difficult to recover when heavy demands for money were rigidly pressed in other directions, for other and more pressing necessities. The increased price of lumber and labor have been and still are in the way of the purchase and fitting up of new grounds. But it is now hoped that a stock company will be organized for this purpose.

Prior to 1861, although we were very poor, we held annual fairs, except in 1855, when it was abandoned on account of the inclemency of the season.

The society was carried along by the private means of the Secretary, he having frequently assumed the indebtedness of the society to the amount of several hundred dollars in getting up a fair. In 1861 he removed to the country, where other duties and the state of his finances forbade such attentions and such advancements as were necessary to carry forth the operations of the society, and thus it has remained until the present. Others more engaged in active benevolence, found it more respectable to invest in stocks, or loan to their neighbors at eighteen to forty per cent., than to loan to the society for nothing, so that its chances for progress were absolutely destroyed for the time.

A delegate might have been sent to the meetings of the State Board, but the society meetings were unattended, and no delegate chosen, and the Secretary engaged so that it was impossible for him to attend the State Board meetings.

The directors have held meetings, but finding no such interest in the society as would justify them, as they thought, in doing anything, adjourned.

FINANCE.

At the fair, October, 1860, there was paid cash premiums	$507 50
There was paid for repairs and help	373 83
Funds now on hand	764 00
Funds in county treasury, about	300 00

The meeting to-day appointed as delegate to the State Board the Honorable John Higgins, of this county. He is an active, interested agriculturalist, but his duties in the organization of the State Legislature may interfere with his attendance on your meetings. The appointment was tendered to the Secretary, but owing to professional engagements for the next five weeks, he was compelled to forego the pleasure, and declined the honor in favor of one better qualified for the position.

This informal report is made hastily, without any form, or knowledge of what formality is required by the State Board in such reports, in hope that it may be satisfactory, as well as sufficient for all practical purposes of the Board. If information more in detail is required, on being informed of the fact, and of the form in which it is required, we will try to comply with the request.

It is now in contemplation to hold a fair the present year, if sufficient aid can be had.

Respectfully,

A. J. BOONE, *Secretary.*

CLAY COUNTY.

The Secretary of the Clay County Agricultural Society submitted the following report:

To the State Board of Agriculture:

In compliance with the law governing the proceedings of agricultural societies, the Clay county society submit the following report:

On the last day of the fair the society proceeded to elect officers for the ensuing year, with the following result:

OFFICERS.

E. A. THOMPSON, President.
JOHN FRUMP, Vice-President.
DAVID NETTER, Secretary.
JAMES M. HASKINS, Treasurer.

This society held its thirteenth annual fair on the grounds of the society, in Bowling Green, on the 15th, 16th and 17th days of October, 1868, and, notwithstanding the inclemency of the weather, the attendance was liberal, and the exhibition of stock, the various productions of the soil, and the mechanical department, was truly meritorious and gratifying. There were about two hundred articles entered for premiums. Prominent among them was the display of good horses. Wheat, corn, oats and potatoes were exhibited in profusion, especially potatoes. In short, the exhibition, in every department, was a decided success.

The agricultural and mineral wealth of this county is fast being developed, and blast furnaces, rolling mills, and nail factories are springing up as if by magic, and the building of new railroads is a general theme of conversation. The farmers of Clay county may now build houses and barns the lumber of which was derived from their own forest, using nails the iron of which was manufactured in their midst from crude ore, and coal that was taken from the veins underlying his house garden and orchard, and the laborers in the manufacture of the materials being fed upon the productions of the self-same soil. Truly there is yet a glorious future in store for our county.

In looking over the past year, the farmers of Clay county may well feel gratified as to the result of their labor. Although in some parts of the county wheat did not come up to expectations, the deficit was, to a great extent, supplied by the greater amount. The oat crop was excellent, both in quantity and quality. The hay crop was unsurpassed. The crop of corn, the great staple of Clay, may also be considered as coming up to the average, although the prolonged rains in the spring retarded planting; still in every case where the culture was thorough, and the soil in good condition, a good and full crop was secured. The potatoe crop was also a success. While those planted early were somewhat injured by the drouth, the later ones yielded almost fabulous returns. In the fruit crop, apples were a partial failure, but the loss was, to some extent, supplied by the peach crop, which was enormous.

On the whole, the result of our labor has not only been gratifying, but at the prices paid for the products of the soil, also remunerative, making agriculture not only the most noble, but also one among the best paying employments of man.

David Netter, *Secretary.*

DECATUR COUNTY.

The Secretary of the Decatur County Agricultural Society submitted the following report:

To the State Board of Agriculture:

Herewith I submit the report of the Decatur County Agricultural Society for 1868:

ENTRIES.

Live stock	299
Agricultural	79
Mechanical	190
Miscellaneous	575
Total	1,123

RECEIPTS.

Total receipts	$2,450 00

PREMIUMS PAID OUT.

Live stock	$949 00
Agricultural	50 00
Mechanical	223 00
Miscellaneous	197 00
Total	$1,419 00

Respectfully,

FRANK M. WEADON, *Secretary*

DELAWARE COUNTY.

The Secretary of the Delaware County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Delaware County Agricultural Society was organized January 11, 1868. The capital stock of said society is fifty thousand dollars, divided into shares of ten dollars each. A tract of forty-one acres of land, lying a half mile north of Muncie, was purchased by the society for fair purposes, at one hundred and sixty-five dollars per acre. A large force was put to work to prepare the grounds for the exhibition, which took place on the 22d, 23d, 24th and 25th days of September, 1868.

The entries at the fair were fully as large as usual, numbering eight hundred and twenty-one in the different departments. The incessant rain during the days of the fair kept visitors away, the receipts being, consequently, small.

The cost of the grounds and improvements amount to (January 1, 1869,) $11,014.87. Payments have been made to the amount of $3,073.25, leaving the society in debt $7,941.52. This amount will be paid off during the present year, leaving the society free from debt, and possessing the most beautiful and spacious grounds in the State.

Respectfully,
J. A. HACKTELL, *Secretary.*

EDINBURG UNION (JOHNSON COUNTY.)

The Secretary of the Edinburg Union (Johnson County) Agricultural Society submitted the following report:

EDINBURG, January 5, 1869.

To the State Board of Agriculture:

At an annual meeting of the Union Agricultural Society, held at their office on the 14th day of November last, the following officers were elected for the ensuing year:

OFFICERS.

SAMUEL CUTSINGER, President.
J. M. PERRY, Vice-President.
J. M. THOMPSON, Treasurer.
J. M. KELLY, Secretary.
JACOB MUTZ, General Superintendent.

Directors—J. A. Thompson, J. P. Forsythe, Johnson county; M. V. Ensley, Zac. Webb, Shelby county; James Ely, W. N. Kyle, Bartholomew county; H. Lewis, W. P. Rush, at large.

This society is in a healthy and prosperous condition, and will be represented at the meeting of the State Board of Agriculture by John A. Thompson.

Respectfully yours,

J. M. Kelly, *Secretary.*

FRANKLIN COUNTY.

The Secretary of the Franklin County Agricultural Society submitted the following report:

Brookville, Dec. 20, 1868.

To the State Board of Agriculture:

OFFICERS.

Samuel P. Roberts, President.
William Robeson, Vice President.
F. R. A. Jeter, Secretary.
R. P. C. Barwick, Treasurer.
William A. Quick, Marshal.

The seventeenth annual exhibition of the Franklin county Agricultural Society, closed on the 18th of September last. As a whole, it was equal to any of its predecessors. The greatest difficulty under which our society labors, is the small extent of our grounds—not to exceed six acres. An effort was made last year to make an additional purchase, but failed.

The Treasurer's report, although bringing the Society out a little in debt, shows a healthy financial condition, when it is considered that nearly or quite one thousand dollars was expended during the year in making permanent repairs. The receipts amounted to about one thousand six hundred dollars.

The farming and mechanical interest is not so well represented at our exhibitions as it should be, owing to causes which are outside of the organization.

L. H. Haymond, *Secretvry.*

GRANT COUNTY.

The Secretary of the Grant County Agricultural Society submitted the following report:

Marion, Ind., December 3d, 1868.

To the State Board of Agriculture:

In compliance with the requisition of the Secretary of your Board, I beg leave to make the following report for the Grant County Agricultural Society:

OFFICERS.

James Sweetser, President.
Henry Shugarts, Vice President.
D. P. Cubberley, Secretary.
John N. Turner, Treasurer.

Our Society has now attained its fourteenth year, and is in a vigorous and healthy condition, having an enrolled membership of over five hundred names, being out of debt, and with a surplus on hand amounting to six hundred and forty dollars.

Owing to the inclemency of the weather at the time set for our fair, and the intense political excitement consequent upon the late Presidential election, our annual exhibition was postponed until the autumn of 1869. This was a source of regret to the officers, but was unavoidable. Had the weather been at all favorable, and the Fair come off as advertised, I do not doubt but that it would have been the largest and best that we have ever had. Our people take a lively interest in our State and County Fairs, and are at all times ready to do all in their power to make them of interest and profit. Owing to the fact that until within the last year we have had no railroad communication with other parts of the State, our county has been to some extent isolated, and but few people are acquainted with the many advantages that here await the investment of capital and enterprise. Among those advantages may be enumerated our fine quarries of building stone, not surpassed by any county in the State; limestone in abundance, of the best quality. Our unimproved lands are covered with a heavy growth of the best of timber, of which our black walnut, oak, and yellow poplar are considered the most valuable. As a body of rich and productive land for agricultural purposes, the county is not surpassed. Our streams afford ample water power for a large number of flouring mills and machinery. The citizens are of industrious and temperate habits, maintaining more than an average of good schools and churches. Along the valley of our Mississinawa may be seen some of the best improved farms in the State.

Respectfully,
D. P. Cubberley, *Secretary.*

HUNTINGTON COUNTY.

The Secretary of the Huntington County Agricultural Society submitted the following report:

Huntington, Ind., January 4, 1868.

To the State Board of Agriculture:

Permit me to furnish you with the following report from the Huntington County Agricultural Society:

The Huntington County Agricultural Society was organized in January, 1868, and has purchased and paid for twenty acres of ground, have it enclosed with a good pine lumber fence, have a good half mile driving track within the enclosure, have three hundred members, but, so far, have held no fair; but the intention is to hold a fair the coming season.

Very respectfully yours,
P. W. ZENT, *President.*

ROBERT SIMONTON, *Secretary.*

HENRY COUNTY.

The Secretary of the Henry County Agricultural Society submitted the following report:

To the State Board of Agriculture:

Report of Henry County Agricultural Society Fair, held at New Castle, September 15th to 18th, 1868.

OFFICERS.

THOS. WILHOIT, President.
CHARLES L. HOOD, Vice-President.
JOSHUA HOLLAND, Treasurer.
ELISHA CLIFT, Secretary.

This fair being the seventeenth annual fair held in this county. The society organized under the laws of Indiana, a joint stock agricultural society, with one hundred and twenty-four stockholders, at $25.00 for each share of stock, all of which has been paid in, amounting to the sum of $3,100.00.

The society purchased ten acres of ground within the corporate limits of the city of New Castle, which has been enclosed with a good and substantial fence, a floral hall not surpassed in the State, a good and substantial office for the Secretary and Treasurer, and a commodious hall for grain and vegetables, with good and durable accommodations for the mechanic who desires to exhibit his work. The whole has been white-washed and painted and makes one of the most beautiful fair grounds in our State.

Total amount paid into the treasury was $4,440.19.

EXPENDITURES.

Paid for ten acres of ground	$1,950 00
Paid for improving the ground	1,150 00
Paid out on premiums for 1868	1,221 00
Paid taxes and other charges	119 19
Total	$4,440 19

On the 7th day of November, 1868, the stockholders convened at the court room in the town of New Castle, for the purpose of electing officers for the ensuing year. Said election was had by ballot, as required by the constitution and by-laws of the society, and resulted as follows:

OFFICERS.

Simon S. Powell, President.
Edward Johnson, Vice-President.
Dr. John Burch, Secretary.
Joshua Holland, Treasurer.

The following named gentlemen were duly elected executive committee for the ensuing year:

Executive Committee—John Stanley, Robert H. Cooper, Geo. L. Koons, Peter P. Rifner and Thos. Wilhoit.

The agricultural fair of this county, under the new organization, will be a success. It is contemplated to have one of the best fairs this year that has ever been held in eastern Indiana.

Our last fair was held during the last presidential campaign, and the week it was held there was several large mass conventions, of both political parties, in this and neighboring counties, that caused the receipts to fall short of what the managers expected.

JOHN BURCH, *Secretary.*

MORGAN COUNTY.

The Secretary of the Morgan County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

JAMES E. BURTON, President.
ELI HANY, Vice-President.
JAMES J. GRAHAM, Secretary.
JOHN N. GERGORY, Treasurer.

In the absence of the necessary blanks, we cannot give so full and satisfactory details of our institution as we desire. The fair of 1868 was held on the 8th to the 12th of September.

In consequence of the inclemency of the weather, the number of entries and the attendance was far below the usual number.

Our horse show was fine. The cattle show was a small affair, in consequence of a report having been circulated that the Texas fever was raging in our county.

We are contemplating leasing or purchasing grounds.

Dr. E. Henderson was elected as Delegate to represent our county at the meeting of the State Board of Agriculture.

J. E. BURTON, *President.*

J. J. GRAHAM, *Secretary.*

MADISON COUNTY.

The Secretary of the Madison County Agricultural Society submitted the following report:

To the State Board of Agriculture:

Society organized on joint stock plan, May 6th, 1868. Capital stock, $3,100.

OFFICERS.

WM. CRIM, President.
J. RYAN, Secretary.
JOHN P. BARNES, Treasurer.

STATEMENT OF FINANCES.

Clearing, fencing, making track, constructing stalls, halls, etc.	$4,200 00
Amount of premiums for 1868 and expenses of fair	1,619 00
Total	$5,819 00
Capital Stock	$3,100 00
Assets of fair	2,200 00
Wood, etc. off grounds	400 00
Total	$5,700 00

The first annual fair was held October 14th to 17th, 1869. Number of entries, seven hundred and sixty.

The society has twenty acres of ground enclosed by a good fence, adjoining the corporation of the town of Anderson, with halls, stalls, etc. and a half mile track inferior to none in the State, graded to an almost perfect level, fifty feet in width, enclosed with fence on both sides.

Our exhibition of horses, cattle, etc. was highly creditable to our county. The agricultural, horticultural, floral and fruit exhibition, for the lateness of the season, was very fine. For the first exhibition we regard it a perfect success and an indication of many fine exhibitions in the future.

Respectfully,

J. RYAN, *Secretary.*

MIAMI COUNTY.

The Secretary of the Miami County Agricultural Society submitted the following report:

PERU, January 4, 1869.

To the State Board of Agriculture:

In obedience to the requisitions of law I make the following report of the Miami County Agricultural Society:

OFFICERS.

NATHAN O. ROSS, President.
JOHN MISENER, Vice President.
JAMES B. FULWILER, Treasurer.
WILLIAM A. McGREGOR, Secretary.

The society was organized in the spring of 1856; leased ground for ten years; lease expired in the spring of 1867; have had no fair since 1866, in consequence of being unable to procure grounds.

The society is out of debt, and has deposited in bank seven hundred dollars.

Respectfully,

WILLIAM A. McGREGOR, *Secretary.*

OWEN COUNTY.

The Secretary of the Owen County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

W. M. Franklin, President.
John Rone, Vice President.
J. W. Archer, Secretary.
D. E. Beem, Corresponding Secretary.
J. V. Wolfe, Treasurer.

The Agricultural Society of the County of Owen has been organized some twelve years, and has held several very successful fairs. Our organization has been kept up, but we have held no fair since the commencement of the late war. Our farmers are now waking up again to the importance of the matter, and a very general desire is manifested to have a fair in the year 1869.

Respectfully,
J. W. Archer, *Secretary.*

ORANGE COUNTY.

Paoli, December 25, 1868.

To the State Board of Agriculture:

The Treasurer of the Orange County Agricultural Society submits the following report of receipts and expenditures of the eighth annual fair, held at Paoli September 29 to October 3 inclusive:

RECEIPTS.

Sale of tickets and badges for admittance to fair.	$600 25
Per cent. collected by the Secretary for entries of stock.	147 00
License to sell confectioneries, etc., on the ground	37 00
Stall rent and sale of feed	76 20
Total receipts	$860 45

EXPENDITURES.

Cash paid premiums.	$481 87
Necessary expenditures of fair, including police, gate-keeper, musicians and officers	239 90
Old debts for lumber, repairing, etc.	172 09
Total expenditures	$893 86
Deduct receipts	860 45
Shows expenditures over receipts	$33 41

Respectfully.

A. J. Rhodes.

PUTNAM COUNTY.

The Secretary of the Putnam County Agricultural Society submitted the following report:

To the State Board of Agriculture:

Our organization for 1868 was commenced at the annual meeting in December, 1867, by the election of the following

OFFICERS.

R. M. HAZLETT, President.
WILLIAM BRIDGES, Vice-President.
T. P. NELSON, Treasurer.
D. C. DONOHUE, Secretary.

The farmers of Putnam county commenced holding fairs for the exhibition of stock as early as the year 1837. The first one was held on the 7th day of September of that year, within one hundred yards of the Court house in Greencastle, since which time, however, there has grown up a spirit of emulation among our farmers, which has been the means of bringing from other States and England into the county some of the best stock in the State, and it is not assuming too much to say that Putnam county has more fine cattle, horses, and mules than any county in the State.

Our County Fairs since 1837 have been organized and conducted upon almost every system that could be imagined. The organization of 1868, while it is to some extent a continuation of the former one of the same name, and its aims and objects the same as the others, has been, in many of its main features, organized and conducted efficiently as follows:

MEMBERSHIP.

Each member loans the Society twenty-five dollars for five years, drawing interest at the rate of six per cent. per annum, which constitutes them members as long as they hold the Society's note for that amount. We have now about seventy-five members, several of whom are mechanics and merchants. Our location is admirably adapted to the holding of fairs, as we have ample railroad facilities for the conveyance of visitors and stock from all the surrounding counties.

We think we ought with justice to place agriculture at the head of the arts; it certainly has the advantage of all others, as well with regard to its antiquity as utility. This we think should apply more especially to the cultivation of the soil; the manner and mode of producing the greatest quantity of food for the use of man or beast from a given area of land. However, we should not fail to hold in high estimation the mechanical skill which has rendered what was placed upon our first parents as a punishment an agreeable and healthy exercise, and to the true lover of nature and science, an absolute pleasure. For such has been the improvement in agricultural implements, that labor which has hitherto been regarded as irksome is now rendered delightful. But for the purpose of making our fairs as far as possible social institutions, we include in awards of premiums all classes and professions, so as to induce all of those who either can present that which is useful or beautiful to make an exhibition of articles in their respective departments.

OBJECTIONS TO FAIRS ON THE SCORE OF IMMORALITY.

How far holding fairs for the exhibition of anything where the premium or the amount of money to be made or gained by the party who takes the premium, can be defended on the score of strict morality, I will leave for others to discuss. Certain I am, however, that I have not known any one to refuse to take the money awarded, though they received ten dollars for every one paid to the society for the right to exhibit, nor do I recollect of any one dividing their premiums with those whose articles were thought by many to be as good as the one taking the premium.

THE FAST RING.

The horse or fast ring seems to be one of the attractions to our fairs; in fact, fast trotters, pacers and rackers bring the crowds and keep them all the week, and without them no society can pay such premiums as are paid by first-class societies, unless the officers and members pay it out of their own pockets, which is not commonly done. That people bet on the races at the fairs no one will pretend to deny or excuse; so holding fairs and having fast rings, present one additional opportunity for those disposed to gamble. But aside from the temptation to bet on the horses that go on time, there is more interest manifested in the exhibition of speed in horses than any other feature of our fairs, and this interest is not confined alone to the vicious portion of the community, but is manifested by the most enlightened and exemplary classes. (With some honorable exceptions, who do not desire to witness anything that could be construed as wrong.) If fairs and fast rings are demoralizing, and ruining the young men, they ought to be stopped; and so ought our elections, for the practice of betting on elections prevails to an extent never dreamed of at fairs; so it is not the fairs that ruin young men, but young men who visit fairs for the purpose of betting that injure fairs.

We fitted up our grounds, twenty-seven acres, in a beautiful grove, on the farm of Hon. John A. Matson, convenient to the depot of the Indianapolis and Terre Haute railroad. The grounds are enclosed with a substantial plank fence, with an ample number of stalls and other buildings for the use of exhibitors.

Our fair commenced on the fourteenth day of September and closed on the nineteenth. Receipts from the fair were $2,251, all of which was paid out on premiums and incidental expenses. We hope to be able to offer such premiums at our next fair as will attract all our old friends and many new ones.

Respectfully,
D. C. Donohue, *Secretary.*

SPENCER COUNTY.

The undersigned, Secretary of the Spencer County Agricultural Society, submits the following report of the annual fair held at their grounds, near Rockport, September 30th to October 3d, 1868:

ROCKPORT, December 31, 1868.

To the State Board of Agriculture:

OFFICERS.

GEORGE THOMAS, President.
Col. WM. F. WOOD, Vice President.
THOMAS R. HARDY, Treasurer.
JAMES J. CAVIN, Secretary.

The entries for premiums were two hundred and fifteen, and the amount paid on premiums awarded six hundred and ninety-nine dollars and thirty cents. The receipts from all sources were one thousand two hundred and thirty-eight dollars and thirty cents. Expenditures one thousand two hundred and six dollars and sixty-five cents; leaving a balance of thirty-one dollars and sixty-five cents.

The weather being pleasant, the fair was well attended, and much greater interest was manifested than was anticipated by the officers and members previous to holding the fair.

JAMES J. CAVIN, *Secretary.*

ST. JOSEPH COUNTY.

The Secretary of the St. Joseph County Agricultural Society submitted the following report:

To the State Board of Agriculture:

At the annual meeting of the St. Joseph County Agricultural Society, held at South Bend, December 19th, the following persons were elected officers for 1869:

OFFICERS.

A. N. Miller, President.
J. R. Dunn, Vice President.
J. R. Miller, Secretary.
L. P. Bulla, Treasurer.
Nathaniel Frame, Delegate.

Our last fair was nearly a failure, owing to a lack of interest among farmers and the excitement growing out of the fall elections. The number of entries was four hundred and fifteen, mostly mechanical. The receipts, two hundred and ninety dollars. Amount paid for premiums and expenses, seven hundred dollars. We had enough money on hand, with what show licenses we received, to pay in full, and have a small surplus left. We hope to do better next year.

Respectfully yours,
C. G. Toule, *Secretary.*

STEUBEN COUNTY.

The President of the Steuben County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Steuben County Agricultural Society reports that during the war they have held no county fairs, and since its close, owing to the almost total failure of three successive wheat crops, the agricultural interests have suffered so severely that our annual fairs have been discontinued.

Ours is peculiarly a wheat growing county. The crop of 1868 shows some signs of returning prosperity. An average of perhaps ten bushels of wheat were harvested to the acre. We shall again resume our county fairs the coming season, and with returning prosperity contribute our part to the great agricultural movement of the State.

A. W. HENDRY, *President.*

TIPPECANOE COUNTY.

The Secretary of the Tippecanoe County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Tippecanoe County Agricultural Association was organized on the 4th day of September, 1867.

OFFICERS.

H. T. SAMPLE, President.
DR. S. JONES, Vice-President.
TASWELL JOHNSON, Treasurer.
JOHN M. BOGGS, Secretary.
J. B. MCCUTCHEN, Superintendent.

Our second annual far was held on the association's grounds, at Fountain Rise, seven miles south of the city of Lafayette, commencing September 22d and ending September 26th, 1868, and was a success, taking the location of the grounds, (which were located for the convenience of the adjoining counties, as well as that of Tippecanoe, which happened to set the same time and date for their exhibitions,) and the weather at the time being unfavorable.

Total entries	739
Total premiums paid	$645 00
Total receipts	1,288 50

Which after paying premiums in full, together with expenses, leaves a small amount in the treasury.

The general success of the association is expected to be good, it having paid all the premiums and part of the expenses. A great interest seems to be taken in the development of live stock, particularly horses.

J. B. SIMMISON, *Secretary.*

TIPTON COUNTY.

The Secretary of the Tipton County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

JOHN M. PATTERSON, President.
BARTON DAY, Vice-President.
M. E. CLARK, Secretary.
W. P. WEED, Assistant Secretary.

This society held its ninth annual fair September 15th to 18th, 1868.

Whole number of entries, two hundred and eighty-two. Total receipts, $559.93. Expenditures, $569.93.

This society does not own grounds; hence has had to move from time to time, at great expense. The finances are not in a very healthy condition. We think we will not elect officers under this organization again, but will form a joint stock company.

We have here a rich, productive soil, and in a few more years will not be excelled by any part of the State of Indiana.

We think the basis of agricultural societies should be joint stock, to insure a permanent and profitable organization,

Respectfully,

M. E. CLARK, *Secretary.*

UNION COUNTY.

The Secretary of the Union County Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Union County Agricultural, Horticultural and Mechanical Society would respectfully report that they held their third annual fair on their grounds at Liberty, September 22d to 25th, 1868.

The number of entries and exhibition of stock, grain, mechanical work and ladies' useful and fancy work, by far exceeded any ever held in the county, but owing to exceedingly wet and cold weather, which commenced the second and continued until the fifth day of the exposition, the attendance was not large; consequently the receipts were not so satisfactory to the society as they doubtless would have been had the weather and temperature been more favorable.

The total receipts were about $950.00. The amount of premiums awarded and paid was in the aggregate $1,123, ranging from fifty dollars down to one dollar.

In addition to the amount paid for premiums, the society, during the present season, went to heavy expense in erecting new and permanent buildings, for the various purposes of a permanent and substantial character, which, owing to the small attendance at their fair, left them considerably involved; but with a commendable zeal and a determination to know no such word as *fail*, the directors immediately borrowed what money they needed and paid off their building expenses and premiums in full, and are diligently at work with a determination to succeed in the future.

The society own, in fee simple, twelve acres of ground inside the corporation of Liberty, the county seat, which is well situated for the purpose and is being well improved.

Union county, though quite small (there being but one smaller in the State), nevertheless stands among those at the head of the list in point of enterprise, industry, education and morality and is dotted all over with churches, school houses and mills of an excellent quality, is well watered, and in point of healthfulness is behind none east of the rocky mountains.

The display of horses, cattle, sheep and swine was large and of the best quality.

The mechanical and grain departments were well represented.

The display of fruits was very meagre, owing to the fact that with the exception of a fair average crop of peaches, the fruits of all kinds are an entire failure the present season.

The miscellaneous entries were numerous and consisted of many articles both curious and useful.

The display in the ladies' department, both useful and ornamental, was indeed grand and by far exceeded anything of the kind ever before exhibited in this section of the State.

The wheat and hay crops of the county was a good average, both in quality and quantity. The corn crop was the best for many years. Oats good, but little planted. Flax a very short crop. Potatoes abundant and of an excellent quality.

In submitting the foregoing, we endeavored to state facts as they are and in as few words as possible.

ELI PIGMEN, *President.*

A. F. Davis, *Secretary.*

WAYNE COUNTY.

The Secretary of the Wayne County Joint Stock Agricultural Association submitted the following report:

To the State Board of Agriculture:

The society was organized June 28, 1867.

OFFICERS.

Rankin Baldridge, President.
David Commons, Vice-President.
Henry B. Rupe, Treasurer.
Sylvester Johnson, Secretary.
John M. Maxwell, Superintendent.
John P. Smith, Assistant Superintendent.

The fair ground adjoins the town of Centreville, and contains twenty-seven acres. It is most delightfully situated and well improved.

Two fairs were held during this year. The first was a horse fair, held June 26th and 27th, which pecuniarily was not very successful, as the following figures will indicate:

EXPENDED.

For premiums	$408 00

RECEIVED.

For entries	$75 00	
For rents	27 00	
For donation from citizens	50 00	
For tickets sold	244 00	
		$396 00

The October fair, which was held from October 6th to the 10th, inclusive, owing to political excitements and unfavorable weather was not as successful as might have been wished, but yet more so than was expected.

RECEIVED.

For tickets	$1,865 60
For entries	348 40
For rents	446 50
Total	$2,660 50

EXPENDED.

For premiums	$2,108 59

NUMBER OF ENTRIES.

Live stock	230
Agricultural	141
Mechanical	90
Miscellaneous	81

The organization of our association has given a new impetus to the interest in agriculture, horticulture and fine arts in our county, and it will no doubt produce a generous rivalry which cannot but be beneficial to our industrial pursuits.

Respectfully,

SYLVESTER JOHNSON, *Secretary.*

PARKE COUNTY.

The Secretary of the Parke County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

WILLIAM NELSON, President.
JOHN PICKARD, Vice-President.
ALBERT HUNT, Secretary.
PERLEY PEARSON, Treasurer.
GREEN MOTE, Superintendent.

This society, in its present form, was organized in 1865, and since that time has held semi-annual exhibitions.

Our fair grounds are enclosed with a substantial board fence, and contain a floral and an agricultural hall, the latter erected last year, at a cost of $275, and the society is about free of debt.

The past year the society introduced two new features, which added much to the interest of the exhibition: first, liberal premiums were offered for the best crops of growing grain, comprising wheat, corn, timothy and clover; second, the organizing of a juvenile department, in which children under fifteen years of age could compete in vegetable, field crops, flowers and table comforts.

The fairs for the present year were held in June and October:

ENTRIES.

Field crops	24
Gardens and nurseries	9
Fruits	58
Garden products	93
Flowers	26
Table comforts	345
Domestic manufactures	93
Fine arts	14
Agricultural and mechanical implements	29
Machine manufactures	11
Juvenile department	39
Miscellaneous	46
Total	787

The receipts were three hundred dollars, which, after paying premiums and expenses leaves a small balance in the treasury.

The interest manifested in our society is very encouraging, although we have no fast rings, shows, or chuckluc tables to attract a crowd—our constitution prohibiting everything of the kind.

ALBERT HUNT, *Secretary.*

December 28, 1868.

BROWN TOWNSHIP, MORGAN COUNTY.

MOORESVILLE, INDIANA, January 4, 1869.

The Secretary of the Brown Township Agricultural and Horticultural Society, of Morgan County, Indiana, submitted the following report:

To the State Board of Agriculture:

We have the honor to submit the following report of the Brown Township Agricultural and Horticultural Society of Morgan county, Indiana.

The past year, although dry, has been one of prosperity to our society.

We believe we are accomplishing more good to the farmers than all the fast horse shows that have been held in the State. We are determined to oppose the fast horse in our township, county, and State.

We held an exhibition last June, which brought out quite a display of early vegetables, small fruits, kitchen, dairy products, live stock, etc.

October 16th and 17th we held another exhibition on our new grounds, which far exceeded our most sanguine expectations. After paying the expenses of fitting up our grounds we had remaining in the treasury the sum of fifty-four dollars.

We made five hundred and nine entries.

Our show of fruit was not so good as the previous year, the apple crop being almost a total failure. We had some fine varieties of peaches and grapes, but owing to the late date of holding our fair we had a sparse exhibition in this department.

The kitchen and dairy department was well supplied.

The exhibition of live-stock was the best we have ever had. There were fifty-one entries of horses, five of cattle thirty-three of hogs, nine of sheep, etc.

Altogether, we had a good time, and would be happy to hear of other townships in the State organizing such societies, for they will undoubtedly accomplish more good to the farmer than all the State or county fairs. The reckless mode of farming in our State can be checked only by such societies; they are at the farmer's door, and will wield an influence over him that county and State fairs can not.

Respectfully,

ELI HARVEY, *President.*

JOSH. L. HARVEY, *Corresponding Secretary.*

VIGO COUNTY.

The following report from the Terre Haute Horticultural Society was submitted:

To the State Board of Agriculture:

The Terre Haute Horticultural Society has been in a flourishing condition during the past year. Meetings and exhibitions of fruit, flowers and vegetables, in their season, have been held regularly each month at the residences of the different members. The number of members on the roll the past year has been about sixty. The regular attendance has been from fifteen to twenty.

The receipts of the year were	$215 00
The expenses were	175 00
Balance in treasury	$40 00

Strawberries, in most places, were not a quarter of a crop. Some few cultivators had a full crop owing to the situation and time of blooming. Continuous rains for several days, just as the plants were blooming, evidently washed off the pollen before the fruit was set. Green Prolific has done remarkably well. It bloomed a little later, and had a very good crop, one patch yielding at the rate of one hundred bushels to the acre.

Apples have been almost an entire failure, probably from the same cause. One orchard had a full crop. From sixteen trees four hundred bushels were gathered, and sold at from one dollar and fifty cents to one dollar and seventy-five cents a bushel. The trees are of the Hoop variety, and are forty years old. They are situated on a light sandy loam soil, and on a ridge of hills elevated thirty or forty feet, protected on the north by thick woods.

With a few exceptions potatoes were not half a crop.

Early in the season grapes promised well, but in many places Catawbas rotted badly. One large vineyard, situated on a gravelly soil, ripened the Catawba well. Concord and Hartford both rotted slightly. Delaware did remarkably well. Fruit of the Iona and Israella grape has not yet made its appearance in this section. We live in hopes that some day we shall see them.

Currants and gooseberries were a light crop.

Immense numbers of watermelons are grown in this vicinity, and are shipped in large quantities to all parts of the country.*

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* No officers named.—SECRETARY.

RECAPITULATION OF COUNTY AND DISTRICT SOCIETY REPORTS OF 1868, COMPILED FROM THE PUBLISHED REPORT OF 1868 AND THOSE HEREUNTO APPENDED, NOT REPORTED IN 1868.

COUNTY	PRESIDENT.	SECRETARY.	TIME OF FAIR.	PLACE OF FAIR.	RECEIPTS.	ENTRIES	REMARKS.
Bartholomew	T. G. Quick	J. I. Irwin	Sept. 15	Columbus	$1,070 00	385	
Boone	N. Fordice	A. J. Boone			1,064 00		Being cash on hand from last year.
Dearborn	J. Anderegg	P. L. Mathews	Sept. 14	Lawrenceburg			No finances.
Decatur		F. M. Weadon			2,450 00	1,123	
Delaware		J. A. Hacktell	Sept. 22		3,073 00	821	
Elkhart	Thos. Miller	J. W. Irwin	Oct. 3		452 00	216	
Edinburg Union, Johnson co.	S. Cutsinger	J. M. Kelley		Edinburg	8,273 02		In treasury, $5,589.07.
Fayette	T. Caldwell	I. L. Bailey	Sept. 1		4,007 99	820	
Franklin	S. P. Roberts	F. R. A. Jeter	Sept. 18		1,600 00		
Hancock	John Hinchman	J. H. Carr		Greenfield	2,378 37	890	
Harrison	D. Jordan	T. McGrain	Sept. 4		1,867 81	340	
Hendricks	F. Haynes	J. V. Hadley	Sept. 4	Danville	848 40	306	
Howard	John Redkey	J. E. Hollowell	Sept. 24	New London	843 80	606	
Huntington	P. W. Zent	B. Simonton					
Henry	S. S. Powell	Dr. J. Burch		New Castle	4,440 19		
Grant	James Sweetzer	Dr. P. Cubberly			640 00		
Jackson		L. E. Rumsill	Oct. 6	Seymour	176 20	382	Premiums awarded; $1,427.83.
Lagrange		F. P. Griffith	Oct. 1		919 45	510	
Lake	H. Wason	J. Barnard	Sept. 30	Crown Point	421 28	319	
Laporte	A. Bush	E. G. McCollum	Oct. 14	Laporte	1,082 00	443	
Jefferson	J. Bramwell	A. Daniels	Sept. 1	Madison	1,513 75	584	
Montgomery	T. H. Fitzgerald	Wm. H. Ross	Sept. 21	Crawfordsville	1,360 00	684	
Monroe		M. L. Snodgrass	Sept. 22	Bloomington		552	
Morgan	J. E. Benton	J. J. Graham	Sepe. 8	Martinsville			
Madison	Wm. Crim	T. Ryan	Oct. 14	Anderson	6,819 00		
Miami	N. O. Ross	W. A. McGregor		Peru			$700 on hand.
Noble	G. W. Chapman	E. B. Gerber	Oct. 7	Ligonier			
Owen	Wm. M. Franklin	J. W. Archer					
Orange		A. J. Rhodes		Paoli	864 00		
Posey	Prof. E. T. Cox	F. D. Bolton	Sept. 8	New Harmony	3,443 00	740	
Putnam	R. M. Haslet	D. C. Donohue	Sept. 16	Greencastle	2,251 00		
Rush	T. N. Link	E. Payne	Sept. 8		2,773 78	530	
Sullivan		J. L. Griffin			1,542 00		
Spencer	Geo. Thomas	J. J. Cavin	Sept. 30	Rockport	1,238 30	215	
St. Joseph	A. N. Miller	J. R. Miller		South Bend	290 00	415	
Steuben	A. W. Hinchey						

RECAPITULATION OF COUNTY AND DISTRICT SOCIETY REPORTS OF 1868, COMPILED FROM THE PUBLISHED REPORT OF 1868 AND THOSE HEREUNTO APPENDED, NOT REPORTED IN 1868—CONTINUED.

COUNTY.	PRESIDENT.	SECRETARY.	TIME OF FAIR.	PLACE OF FAIR.	RECEIPTS.	ENTRIES	REMARKS.
Tippecanoe	W. T. Sample	John M. Boggs	Sept. 22	Houston	1,288 65	739	
Tipton	J. M. Patterson	M. E. Clark	Sept. 15	Tipton	559 93	282	
Union	Eli Pigman	A. F. Davis	Sept. 22	Liberty	950 00		
Vermillion	John Henderson	R. E. Stevens	Sept. 4	Newport			Paid in premiums, $800.
Wayne	R Baldridge	S. Johnson	Ju'e2, Oc. 6	Centreville	3,800 17	542	In treasury, $539.91.
Wabash	H. Caldwell	A. Taylor	Sept 15	Wabash	3,800 17	952	In treasury, $842.59.
Warrick	D. L. Hart	M. W. Bennett	Oct. 17	Booneville	2,520 00	998	
Parke	Wm. Nelson	A. Hunt	June & Oct.		300 00		
Vigo (agricultural)			Sept. 21	Terre Haute	2,170 00		
Vigo (horticultural)					215 00		
Brown township, Morgan co.	Eli Harvey	J. L. Harvey	Oct. 16	Moorsville			
Fountain, Warren & Vermillion	A. Fleshman	D. Rawles	Sept. 29				
Fountain and Warren	Wm. Waldrip	T. C. Wiggins	Sept. 24	Attica	820 00	599	
Grand Prairie Agricultural	Thos. C. Moore	R. G. Odle	Sept. 9		933 00	848	
Knightstown Union		Gordon Ballard	Aug. 25	Knightstown	3,200 00		In treasury, $1,220.75.
Switzerland and Ohio	L. Bledsoe	Wm. Rous	Sept. 21			980	
Total 52 counties	Show receipts of 40 counties				$77,259 16	16,821	Showing an average of $1,931.47 only
Total 31 counties for 1869	Show receipts of 25 counties				63,072 06	19,985	Showing an average of $2,522.88.

Being an average to each county, as far as reported, of $591.41, better than the receipts of 1868.

ADDRESS OF HON. ISAAC KINLEY.

EXPLANATION.

RICHMOND, IND., December 23, 1869.

HON. FIELDING BEELER,
Secretary Indiana State Board of Agriculture.

DEAR SIR:—I fear from the manner in which my last year's address was published in the *Indiana Teacher*, a mistake will occur in its publication in your report.

It was published in three installments—the first as an essay—and nothing was said of its being part of my agricultural address. In the next number it was designated in a note below as an agricultural address. Now, what I fear is, that you may have been led to commence my address with the second number. * * * *

Yours truly, ISAAC KINLEY.

I am sorry to be compelled to say that the fears of Hon. Isaac Kinley, as expressed in his foregoing letter, are but too true. His letter, however, fully explains the error in the publication of his address, and first called my attention to the mistake. It all having been published from the *Indiana Teacher*, it was reasonable to presume that Mr. Kinley had fully corrected the proof, and that its publication was correct in every particular. The following is the first part of the address and should preeede the reading of the same on page 39. We reproduce it here from the *Indiana Teacher*, in the same form as published in that journal, in which it appears as a separate and independent article.—SECRETARY.

AGRICULTURE IN THE PUBLIC SCHOOLS.

We can perform best that which we best understand. Knowledge and skill should be united in the same person. It is as important that the mind be familiar with mental processes, as that the hand be skilled in manual performances. In every system of mental culture, the pupil should not only be taught the truth, but he should be able to repeat the logical processes by which it was originally established. So, in the works of practical life, it is not enough to know the fact; we should know also the reason. It is not enough that we be familiar with daily phenomena; we should know also their causes and consequences. It is as important that the agriculturist understand the philosophy of the various processes on the farm, as it is that the mathematician be familiar with the principles from which have been deduced his theorems and formularies. In either case, ignorance produces only routine not likely to be followed by eminent results.

I agree that much has been already done for the education of the whole people. Popular education is, indeed, the distinguishing achievement of modern civilization. In it are the patriot's trust for the permanency of free institutions, and the philanthropist's hope for the well-being of the race. Of all the inventions of the ages, that of universal education is the grandest in its conception, and promises the most varied and beneficial results. It marks, at once, the era of free governments, the moral development and physical well-being of the human race. But in nations, as well as individuals, there is always a better beyond—a higher, and still higher for the achievements of the future. In my opinion, the next great educational step is to be an *industrial* one. The public schools, in addition to the general training which they furnish, must also educate specially with reference to the future vocation of the student. They must, at least, give to him the opportunity for this special education.

All capital is the product of labor, and society itself rests on the broad shoulders of laboring men and laboring women. I shall feel, therefore, that all efforts to increase the educational opportunities of the industrial classes, is a work in the right direction; and that in the advocacy of the introduction of agriculture, as a study, into the public schools, I am standing on firm ground, sustained alike by reason and experience.

But the policy of the movement is not generally admitted, and it will succeed, if at all, over the active exertions of some, and the silent protests of many others.

My strong conviction of the practicability of the movement, and the great good to result, is the apology for bringing the subject before the State Board of Agriculture—a body at once competent to consider the subject, and one from whom an opinion will everywhere be received with respectful attention and consideration.

The first thing which a novel movement or enterprise meets, is always an *objection*. Perhaps, therefore, in the argument, it will be proper first to consider the objections; and after having removed the obstacles, a forward movement may be less difficult.

It is objected that the design of education is mental and moral growth; and that, as mind is superior to matter, and knowledge better than riches, that system of education should be adopted, and that course of study pursued, which will fill the mind with the greatest number of useful ideas, and produce the greatest mental and moral development.

This objection comes from the educators of youth themselves, and is, in truth, the only one worth a moment's consideration. But although it comes under the guise of an objection, and is intended as a strong one, I accept every word of it as truth, and regard it, in fact, as a powerful argument in favor of the study of the industrial sciences, if I may so style them, in the public school.

Doubtless, if we could penetrate the designs of Providence, we should find that life's labors and duties are intended as disciplinarians to prepare for the labors and duties of that higher and better state for which this is probationery.

And it should reasonably follow that the acquisition and application of the requisite knowledge and skill for the performance of these labors and duties, forms the very best possible mental and moral gymnasia. He who supposes that the course of study thus indicated is too limited, must, himself, have exceedingly limited notions of the length, breadth and depth of these obligations.

If it can be shown that the study of the sciences in reference to and illustrative of the industries, is equally as well adapted for mental culture and discipline as the study of them in the abstract, or with no such reference, then the value of such course as a disciplinarian is equal to that of the course now adopted in the schools. If it can be shown that such a course is better adapted for mental training, then the argument preponderates in its favor; and, in either case, the fact that the student is thereby the better fitted for life's duties, powerfully reinforces the argument.

"Use strengthens powers," says the good Spurzheim. The faculties of the mind, like those of the body, become active, vigorous and strong, each by its appropriate exercise. Now, which is the most favorable to mental excitement—the study of a science with or without reference to its practical application? In both cases the same formularies and theorems must be studied and demonstrated. In both cases the same scientific principles must be exemplified by experiment, and by facts in nature. The difference will be, that in the study of science with reference to its uses, a greater number of experiments will be made, and a greater number of familiar phenomena explained.

Another difference will be in the course of study pursued. The agricultural student, who has not the time or means to go through the usual course of study, will elect from it such branches as will assist in mastering the problems of life. He will leave out from the curriculum all languages but his own, and take in their places chemistry, geology, botany, zoology, etc. It is hardly necessary to say that these sciences, in the amount of mental discipline which their acquisition will produce, in the habit and taste for study which the student will acquire, and in the subject for future thought and investigation which they supply, are greatly superior to any course of linguistic study.

It must not be supposed that the study of a science with reference to its uses is not a thorough study of it, and that the agricultural student must therefore be superficial. To explain a fact by reference to its cause, implies a knowledge of the cause itself, and the illustration of a principle by its legitimate phenomena impresses it the more deeply on the mind. By such frequent applications of science, the mind learns to use principles, formularies, and theorems, as a skillful mechanic does his tools.

The value of scholastic education is not to be determined by the amount of mental growth produced during the school years; that school education is the best which lays the best foundation for future growth, enabling the student at the end of his earthly pilgrimage to graduate highest in the scale of human developments. Agricultural studies are therefore valuable in the fact that they appeal to and teach the reasoning faculty during the whole life. The farmer employs practically nearly all the physical sciences, and very wide is the field of research for the educated farmer. Accordingly, we find that this subject has engaged the attention of the most scientific minds. The agricultural student will ever hold in grateful remembrance the names of Davy, Liebeg, Johnston, Draper, Buell, Mapes, and other col-laborators in agricultural science. The result of their labors, it will not be denied, show that they have wrought in fertile fields. The researches of Liebig alone have added great and valuable accessions to human knowledge. He who denounces such studies as superficial is in great danger of proclaiming his own shallowness.

STATISTICS.

With a view to presenting a table showing in some suitable form the manufacturing and commercial statistics of Indiana, I addressed letters to the several United States internal revenue assessors, which I am sorry to say were not responded to except in two instances, viz.: the third and sixth districts. The gentleman at Lafayette signified a willingness to comply with my request so soon as I should place in his hands "the funds" to pay for making it out. Not being so authorized I did not send him funds; hence no report from that important district. The other assessors had various excuses, and declined to furnish the necessary information, though it was all a matter of record in their several offices, and a matter of great interest to the people of their respective districts.

From the third district I am enabled to present the following:

UNITED STATES INTERNAL REVENUE,
ASSESSOR'S OFFICE, THIRD DISTRICT, INDIANA,
NORTH VERNON, December 1, 1869.

FIELDING BEELER, ESQ.,
Secretary State Board of Agriculture:

SIR:—Having obtained from my assistants the approximate amount of manufactures in this district, I submit the same in reply to your letter of the 18th of November, 1869:

Agricultural implements	$234,000
Cotton and woolen goods	391,000
Other articles	5,161,000

This does not include alcoholic spirits, malt liquors, tobacco and cigars.

I am, very respectfully,
H. TRIPP, *Assessor.*

From the sixth, or Indianapolis district:

UNITED STATES INTERNAL REVENUE,
ASSESSOR'S OFFICE, SIXTH DISTRICT, INDIANA,
INDIANAPOLIS, December 14, 1869.

FIELDING BEELER, ESQ.,

Secretary State Board of Agriculture:

DEAR SIR:—As requested, I have the honor to transmit herewith a report of the gross amount of manufactures of the city of Indianapolis, from October 1, 1868, to September 30, 1869, as shown by the records of this office:

Agricultural implements	$410,050
Furniture	347,814
Iron manufactures	331,963
Leather	95,047
Linseed oil	217,999
Harness	19,243
Carriages	134,201
Cotton goods	60,767
Woolen goods	110,639
Pianos	28,394
Lumber, (estimated) manufactured	250,025
Saws	78,085
Sash, doors, and blinds	80,536
Books	96,706
Barrels	42,000
Clothing	261,146
Starch	41,624
Articles not enumerated	104,286
Total	$2,710,525

This does not include several hundred manufacturers who produce less than $5,000, and it will be safe to estimate the aggregate manufactures of this class at $500,000. Adding this to the total manufactures reported, gives a total of $3,210,525.

Very respectfully,

Wm. M. Wiles, *Assessor.*

Extracts from the "Annual Report of the Evansville Board of Trade, for 1868," published by request of citizens in that quarter of the State:

AGRICULTURAL INTERESTS AND THE CROPS OF 1868.

The territory from which Evansville derives its trade, is pre-eminently an agricultural region. It embraces the southwest part of Indiana, reaching one hundred miles north and east from this city, the Wabash valley and Southern Illinois, Western Kentucky, embracing the rich valleys of Green and Cumberland Rivers, the lower Ohio valley for a distance of three hundred miles from its mouth, West Tennessee, North Mississippi and Alabama, and the coast trade on the lower Mississippi. As affecting the commercial interests of this city, it is important to note the condition of the crops for the past year.

The leading agricultural product is corn, which is more or less cultivated throughout the entire region tributary to the trade of Evansville. The valley of the lower Ohio and the Wabash, in immediate contiguity to this city, contain corn-producing lands, equal in extent of crops and quality of grain to any in the world. The crop of 1867, in this vicinity, was one of the most abundant ever produced, and in the whole region of our trade was very good. The crop of 1868, just gathered, and now beginning to come to market, is a very fair yield, but less than that of the previous year. In some localities it has been seriously injured by the frost, but not to such an extent as to materially affect the general crop, which may be set down as fully up to the average.

Next in importance, in this immediate vicinity, is the wheat-crop, the high lands and breadth of the country being very well adapted for its production, and make a profitable return to the cultivator. The yield of the last year has been very good, both as to quantity and quality; and it has been sent to market by the farmers at very good prices. The character of the crop and the price received have had a good effect upon both the country and city trade.

Before the war the cultivation of tobacco was of leading importance in Western Kentucky, and was receiving some attention in Indiana and Illinois; but the high prices during the war stimulated its production in Southern Indiana and Illinois, until now it is competing for its place, third in value, as an agricultural product of those sections. The territory lying adjacent to Evansville, and tributary to its trade, is the largest and most productive tobacco-growing region in the United States. Its influence upon the carrying traffic and general trade of this market is very marked. The crop of 1867 was a poor one, not being more than one-half the usual yield in many localities. The result was that the export of this staple from Evansville in 1868, fell short nearly fifty per cent., and crippled the operations and restricted the business of country traders very greatly, and operated unfavorably upon the trade of this market. The crop just gathered for 1868 is unusually large and of good quality. In some sections it is reported as injured by the frost and badly cured, but the general report is highly satisfactory, and its effect upon business will be very decided for the coming year.

One of the leading articles of import and export of this city is cotton, and our general trade is greatly affected by it, regulating, as its production does, the demands of a large number of merchants visiting this city for manufactured goods, general merchandise, propuce and provisions. Its cultivation to a limited extent is carried on in Southern Illinois; but being the leading staple of West Tennessee, and North Alabama, and Mississippi, regions in close connection with our city by regular packets, the result of the crops has an important bearing upon the commercial interests of Evansville. The crop of 1867 did not yield a very profitable return to the planters, being very light in these regions, and at the time of moving the prices was very low, which combined to effect the general trade. The crop of 1868 is a great improvement upon that of the year preceding, and although the breadth of land cultivated is smaller, the return will be much more remunerative, and it is confidently expected that planters and merchants will be more liberal in their purchases in this market, and better able to meet their engagements with promptness.

Following next in order of prominence in our agricultural productions, are hay, oats, potatoes and barley. The soil of this region is generally very well adapted to the cultivation of hay, oats, barley and potatoes, also prove usually a remunerative crop. During the war the production of hay was largely increased, and proved very profitable to producers. The demand has materially fallen off since the disbanding of the armies, but a good market for export is still maintained with the South. The crop of both hay and oats for 1868 has been very abundant in most localities. The yield of potatoes was good, and in some sections, as in Southern Illinois, it was one of the largest ever grown. The barley crop is a very good one usually, and is receiving considerable attention from farmers. A good market is found at home by our city breweries, but in good crop years there is considerable produce for export. The crop the present season was very light, and grain is being imported from Canada.

The agricultural regions surrounding Evansville are well adapted to the production of the different varieties of grass-seed, such as clover and timothy; also flax-seed, beans, castor-beans, and the root products; and all are receiving more or less attention.

The soil and climate of this vicinity is well suited for most varieties of fruit, and during the last few years the quality has been greatly improved, and the cultivation largely augmented. Last year the crop of apples was almost a failure, though usually reliable, and peaches, which are coming to be largely cultivated, were a poor yield. Grapes, however, proved very fine; this region being well adapted to their production, and as the country is settled in considerable numbers by the vine-growers of Europe, the cultivation of grapes and of the manufacture of wine in Southern Indiana is quite extensive, and rapidly increasing.

The rate of city taxation, was, 1868, on real and personal, average......	$ 1 32½
Value of property as assessed in 1868, real estate........................	12,038,053 00
Personal.........................	4,025,3.4 00
Total	$16,063,377 00
Taxes............................	$217,563 58

Regitsered steam-boats in the district of Evansville, is thirty-seven, representing a tonage of 6000 tons.

During the past year, boat-building and repairing have assumed an increased prominence. Three or four steamboats, a steam ferry-boat, and a wharf-boat have been built, and a considerable number have been extensively repaired. Two or three of the boats built here will compare favorably in material and workmanship with any boats of like dimensions built on the Western waters.

A gratifying feature in connection with our packet lines during the past year, has been the increased disposition manifested by our merchants and shippers generally to give the preference to the packets over transient and outside boats, at equal rates. The result has been a largely increased re-shipping business during the past year.

The total number of steamboat arrivals for 1868 were 2580; passed without landing during the same year, only 314, thus showing Evansville to be an important port.

CORN.

The crop of 1867, in this region, was probably the largest ever produced, escaping the injury which was experienced in many sections of the West; and as a consequence, the exports from this place have been greater for the past year than for any previous season in its history. For many years past Evansville has been one of the largest shipping ports in the Western markets for the New Orleans trade. But a revolution in the current of shipments occurred in the trade of 1868. There has been a very light demand for Southern consumption, owing to the fact of a large yield in that region, and the inability of the people to fully supply their wants, and New Orleans has not yet recovered from the effect which the war had upon it as a market for export trade. The foreign demand for corn made New York the great center of shipment from the West, and the tide from this city turned from the South in that direction North, via the railroads and by packets up the river. Our city, lying in the heart of the most productive corn-growing region in the West, commanding the water transportation of Wabash, White and Green rivers, is enabled to make a very large exhibit for the present year. By reference to the table of exports, it will be seen that the shipments for the twelve months amount to 2,017,797 bushels, against 1,999,707 for 1867. Comparing the business of Evansville with the largest cities of the Ohio River, as appears from their respective Trade Reports for 1868, we find the following result:

Exports of Corn from Cincinnati... 626,778 bushels.
Exports of Corn form Louisville... 727,150 bushels.
Exports of Corn from Evansville... 2,017,797 bushels.

Tobacco shipment from Evansville in 1868, were 19,758 hogsheads, against 35,765 hogsheads in 1867.

Merchandise sales, 1868.............. $13,424,124
Manufactured articles, 1868........... 3,429,421

United States Revenue Commissioner Wells, in his late report to Congress, gives the annual product of the nation as follows:

ESTIMATE OF THE LEADING AGRICULTURAL PRODUCTS.

Cotton, 2,700,000 bales, 450 pounds each, at 25 cents	$303,750,000
Corn, 900,000,000 bushels, at 50 cents	450,000,000
Wheat, 300,000,000 bushels, at $1,25	375,000,000
Oats, 275,000,000 bushels, at 50 cents	137,500,000
Wool, 177,000,000 pounds, (estimated clip of 1868) at 42½ cents	73,225,000
Tobacco, 25,000,000 pounds, at 16½ cents	37,128,000
Barley, 25,000,000 bushels, at $1,20	30,000,000
Hay, 25,000,000 tons, at $10	250,000,000
Rye, 25,000,000 bushels, at $1,10	27,500,000
Hides, 6,700,000 pounds, at $5,50	86,850,000
Potatoes, 150,000,000 bushels, at 60 cents	90,000,000
Buckwheat, 20,000,000 bushels, at $1,00	20,000,000
Flesh of animals, deducting value of hay and grain consumed	400,000,000
Dairy products, deducting value consumed of farm products previously enumerated	400,000,000
All other products of agriculture, including the annual increase in the value of cattle and horses, the value of fruits, seeds, and garden products, the annual addition to the value of farms and farm buildings, and implements made by farm labor not classified as mechanical (fences, drainage, etc.)	650,000,000
Total	$3,282,950,000

In respect to other wealth-producing industries, I glean from the report the following estimate:

Manufactures of cotton	$71,500,000
Manufactures of wool	60,000,000.
Pig and bar iron	119,950,000

Leather manufactures	$222,600,000
Manufactures of paper	72,000,000
Railway service	360,000,000
Fisheries	100,000,000
Total	$4,295,000,000

The data for the foregoing estimate having been obtained through commercial channels cannot show home consumption. So that the only portion of our annaul product represented in the above estimate (except the last paragraph) is the quantity sold in commercial markets. It must, therefore, be that his estimate is in the aggregate fully thirty per cent. below the actual product.

In class of manufactures, there is also an enormous discrepancy. The millions of manufactures of agricultural implements are not given. Take a few of the larger class of this kind of machinery as Reapers, Mowers, Threshers, Plows, &c., and their annual manufacture in the United States, must reach a sum very nearly or quite equal to Mr. Wells' gross amount as set down in his approximated table.

MECHANICAL DEPARTMENT,

UPON WHICH

NO PREMIUMS WERE OFFERED.

SAW MILLS, REAPERS, MOWERS, THRESHERS, SEPARATORS, DRAG SAWS AND SEWING MACHINES, EXHIBITED AT THE STATE FAIR, 1869, UNDER THE FOLLOWING SECTION:

"MECHANICAL DEPARTMENT.

WILLIAM CRIM and BENJAMIN NORTH, Attending Members.

Machinery for which no premiums are offered.

The State Board of Agriculture has decided to offer no premiums for saw mills, reapers, mowers, threshers, separators, drag saws and sewing machines, for the reason that it is not practicable to have such thorough tests and examination of their merits as will be just to the exhibitor. They will, however, provide every necessary facility for their display, and propose as an inducement to manufacturers and dealers in these articles, to appoint an examining committee composed of members of the Board, who will give each article of this kind such consideration as will enable them to report their respective merits for publication in the annual reports, which will hereafter be ready for distribution at the January meeting of the Board.

JOSEPH POOLE, Fountain Co.,
ALEX. HERON, Fayette Co.,
HEZEKIAH CALDWELL, Wabash Co.,
Standing Committee."

To the State Board of Agriculture:

GENTLEMEN—Having prepared the preceding portion of this report for publication and most of it being already in type, expecting daily to receive Mr. Poole's report (it not having been received on the first of December), I wrote him on the subject and received his reply December 5th, in which he says: "The report of our committee I presume is not written, and I presume it was expected that I should perform that labor as chairman of the committee. I have been so constantly employed and so much away from home since the fair, that it has been impossible for me to perform the work. I am compelled to leave home to-morrow for Kansas, to be absent some three weeks, rendering it impossible to give it any attention until after my return. * * * * I send you all my papers on the subject with this letter."

This being the state of the case at this writing (December 20th), I undertake the task with much reluctance, and I would not do so, but for the great importance attaching to this class of machinery, and from the fact that the balance of the report is now in print and so situated that I could not wait for Mr. Poole to make this report.

I also called on Messrs. Caldwell and Levette (Dr. Levette had been appointed by the Board in place of Mr. Heron, excused), members of the special committee of which Mr. Poole was chairman, but their engagements were such that they could not undertake the task.

In writing the report it shall be my aim to do Mr. Poole's memorandum full justice; certainly so far as is possible for another to do, since it is but an abbreviated memorandum

There are so many inventions specially applied to reapers and mowers, the interested inventors and manufacturers each claiming superiority and most of them really valuable, yet in many instances so similar in construction and application to the purposes for which they were intended, that to discriminate between them or draw lines of difference, requires the eye of a practical and thorough mechanic or the good judgment of an adept. Neither of these qualifications are unfortunately possessed by the writer.

In class of reapers, I find eighteen entries, twenty-four mowers, twelve combined machines and sundry and divers attachments, a catalogue of which would be a large volume in comparison to what this report must necessarily be. But their value as labor-saving machines is of such vast importance that they are by right entitled to the best consideration. Indeed, their use is now so interwoven with the industrial pursuits, that they are entitled to positions of the first national importance. To measure their value, but imagine that their use should be prohibited for a year in the United States, thus bankrupting the whole country. An army equal in number to that of the late war, on both sides, could not supply the labor now being saved by this important class of machinery alone.

However, these advantages are so ably set forth in special publications upon the subject, that we need not occupy space with their repetition.

REAPERS.

Entry No. 2.—Improvement on Excelsior machine; Geo. Stephenson, inventor, Zionsville, Indiana; patented July 6th, 1869: who claims improvement in dropper rod and motion, being easily worked by the driver, and perfectly under his control.

Entry No. 3.—Manny's Combined Reaper and Mower, N. C. Thompson, Rockford, Ill.; Wm. G. Rap, agent. Revolving rake, or self-raker; works easily; strikes in front of cutter-bar; delivers sheaf in a compact condition; can be easily changed to suit heavy or light straw; both ends of platform and sickle-bar can be easily raised or lowered, at command of driver; tongue hung on hinge, thus making the draft easy on the team; has one large driving-wheel, and can be turned square at the corners; guards can readily be turned up or down, to either avoid obstructions, or to pick up fallen grain; length of sickle, five feet. The improved pitman appears to be a good improvement. Price of machine, $185. Can use Seiberling's dropper attachment.

Entry No. 4. Improved Quaker, Stetson's patent, C. N. Omer, agent; manufactured at Salem, Ohio. Drive wheels 40 inches in diameter, wooden spokes and felloes, iron tire, uses Seiberling's dropper with Tabor's improved dividing-rod; revolving rod on stand post worked by chain; revolving motion behind the wheel; no weight on the team's neck; easily raised or lowered; to cut sixteen inches; dropper well under the control of the driver's foot for all classes of grain; turning on center driving wheel, easily thrown into or out of gear, when in slow motion. Length of sickle-bar five feet; claims to cut five feet three inches; works well.

Entry No. 5.—Combined reaper, self or hand raker. Inventor and agent same as entry No. 4. Date of patent and place of manufacture same as combined mower, entry No. 15. Platform machine rake, runs by direct power from the machine; no chains; can be controlled by driver for heavy or light grain. This is a single wheel machine, all iron gearing; its draft appears to be quite central. Seat easily raised or lowered. Fingers, maleable iron, with steel plate cutter-bar. Length of sickle-bar five feet; cut claimed five feet three inches.

Entry No. 6.—D. M. Osborne & Co., Auburn, New York, Self-raking Reaper. Length of cut, five feet six inches; portable platform; driver has control of gearing; can lower or raise cutter-bar and platform at pleasure; is a single wheel machine, all iron gearing, solid and permanent. Price, $150.

Entry No. 7.—Combined Reaper and Mower. Name of machine, "Plain Dutchman." By Hoglin & Grafflin, Dayton, Ohio. George M. Hoglen, agent; inventors, Messrs. Miller & Kersting. A self-raker, and under the control of driver, enabling him to make large or small sheaves. Driving wheels thirty-six inches high, the gearing being attached to both wheels, and a fair center-draft. Reel and reel-post adjustable at pleasure. Length of sickle bar five feet; claimed to cut five feet six inches; is adjustable so as to cut right or left; the cutter bar lowered or raised as may be desirable, with a movable seat. The reel may also be raised or lowered, at the option of the workman. Is run by rope belt connecting driving wheel.

Entry No. 8.—Mansfield Machine Works, Mansfield, Ohio, Combined Reaper and Mower, with dropper attachment. (Inventor and agent, see entry No. 17.) Cuts five feet eight inches, swarth six feet; slot dropper attachment. Seiberling's dropper used by adjustable lever, at perfect command of driver. The hand or foot may be used on drop lever; is quickly changed from reaper to mower; the dropper works well. This machine appears to be of easy draft.

Entry No. 9.—Reaper, Mower and Self-raker combined, G. B. and C. Smith, Wooster, Ohio. "Dodge Reaper and Mower, large machine, No. 1," gear and cut about the same as No. 10. Cuts wider and has larger platform.

Entry No. 10. Date of patent, inventor and agent same as No. 18. The Dodge self-raker is used; 4 rakes, either or all under the control of driver. One or all may be used, as heavy or light grain may require. Platform raised or lowered by chain attachment to driving wheel; can be thrown out of gear while under motion. Cuts four feet nine inches.

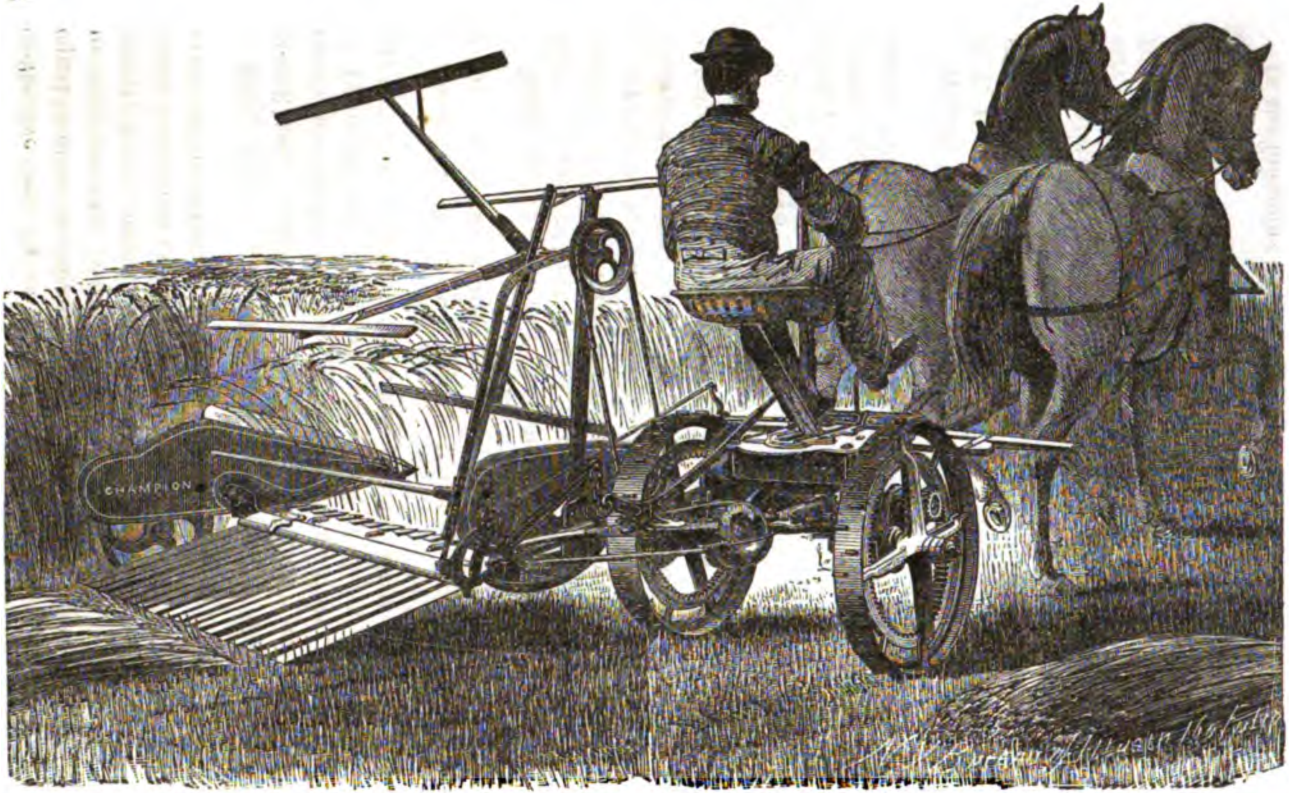
Entry No. 11. Beardsley, Hill & Co., Auburn, New York, Auburn Harvester, Cyrus Wheeler, inventor, M. M. Johnston, agent. Date of patents, May 26th, 1861, April 21st, 1868, July 14th, 1868, November 17th, 1868, and

December 15th, 1868. Self Rake attached by chain to driving wheel, by pressure, well under the control of the driver by the use of a convenient lever. Size of sheaf may be regulated at will of driver; has but one driving wheel; gearing protected by iron shields; cutter guards adjustable, may be taken apart and ground. Cut six feet.

Entry No. 12. Whiteley, Fassler & Kelly, Self-Raking Reaper, (see cut as Self-Raker, on page 475) "Champion." By J. George Stilz, dealer at Indianapolis, O. S. Kelly, general agent. Price of machine, $210,00. Patented April 29th, 1856, and April 28th, 1868, and a large number of improvements claimed. This rake is an ingenious arrangement, and will rake without the driver, though the reel and reel stand are well under his control; reel working by chain attachment; frame iron, and very strong; gearing easily adjusted to suit the grain; two large drive wheels, a good arrangement generally; easily thrown out of gear; cutter-bar five feet long; swarth, five feet six inches; cutter-bar easily raised or lowered.

Entry No. 13. Whiteley, Fassler & Kelly, Self Dropping-Rake. By J. George Stilz, agent, Indianapolis, (see page 475.) "Champion." Self-Dropper. This is a powerful machine, and the dropper is perfectly under the control of the driver, who can regulate the size of sheaves to a nicety. Cutter-bar and appurtenances easily adjusted by lever.

Entry No. 14. J. D. Easter, Chicago, Illinois. "Marsh Harvester." Invented by Marsh Brothers, hence, its name we mention this as the impression from the name might lead persons to suppose that it was a machine peculiarily adapted to marshes, or wet ground. E. L. Stugar, general agent. Patented August 17th, 1858, January 5th, 1864, February 14th, 1865, etc. Price, $230,00. A single wheel machine; self-raker, two men ride on the machine and bind all the grain cut, which is delivered to the binder by a revolving belt from cutter-bar and platform; length of



SELF-DROPPING REAPER. (Exhibited by J. George Stilz, Indianapolis, Ind.)

sickle, five feet, claims to cut five feet six inches; motion equal to other machines. Sickle connected in center and no other gearing; both canvasses or belts are run by one wheel; has a good arrangement for tightening belt, it is easily lowered or raised by driver at pleasure; works well; saves all the grain.

Entry No. 15.—W. H. Williams, Canton, Ohio, World Self-Raker. Same inventor and same patent improvements as World Mower. Self-rake invented by Rahrer, of Pennsylvania. Cam-rake controlled by driver. Sickle-bar five feet. Price for combined machine $260.

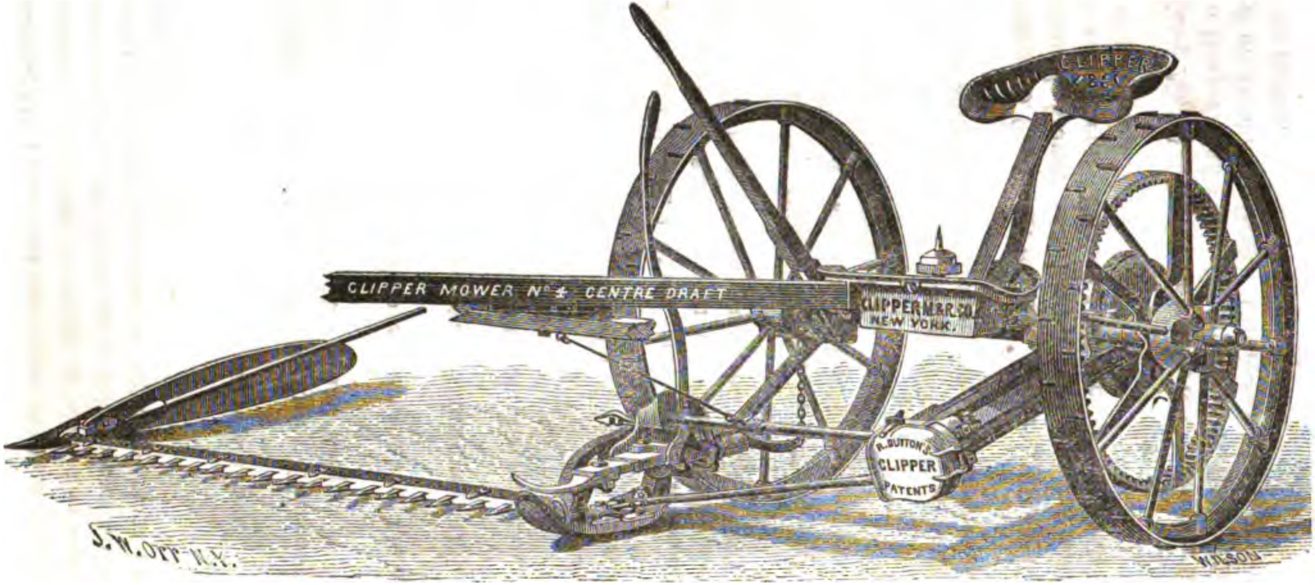
Entry No. 16.—Ohio Reaper. Same as No. 10, except it cuts six feet wide, and can be used as hand-raker.

Entry No. 17.—A. Pritz & Son, Dayton, Ohio. Price $200. James O'Neal, general agent. Oren Dorsey, inventor. Patented March 4, 1856. Claims longer arm and better raker; has two large driving-wheels; iron gearing; raising or lowering easily done; easily changed from mower to reaper; cutter-bar five feet; claims to cut five feet six inches.

Entry No. 18.—Younglove, Massey & Co., Cleveland, Ohio, Combined Self-Raker. Price $200. H. B. Wright, general agent. Has two large drive-wheels; reel run by chain; cuts five feet six inches. Inventor, M. G. Hubbard.

Wood's Combined Machine. Invented by W. A. Wood. E. L. Dexter, general agent. Patented June 24, 1856, and February 22, 1859. A two-wheel machine; entire draft from center of axle; length of cutter-bar four feet; platform easily attached and adjusted, so as to reap or mow at pleasure. Price of machine $200; as a mower, $120. Carlos Dickson, Indianapolis, agent. (Wood's machines were not entered, and came near being overlooked.) (See cut, page 479.)

In the foregoing I have endeavored to follow the memo-



CLIPPER MOWER. (See Pages 478–480.)

randa of Mr. Poole, and have done the best I could, though I know it must fall far short of what this report would have been had Mr. Poole been able to prepare it. It is a matter of necessity that the remaining portion of the report be brief.

MOWERS AND REAPERS COMBINED.

Entry No. 1—Ætna Manufacturing Company, Bryan, Ohio, Double Combined Mower and Reaper.

Entry No. 2.—D. H. Hoover, Miamisburg, Ohio.

Entry No. 3.—D. H. Hoover, Miamisburg, Ohio.

Entry No. 4.—C. J. Brackebush, Indianapolis, Indiana. Price $230. Length of sickle five feet.

Entry No. 5.—C. J. Brackebush, Indianapolis, Indiana.

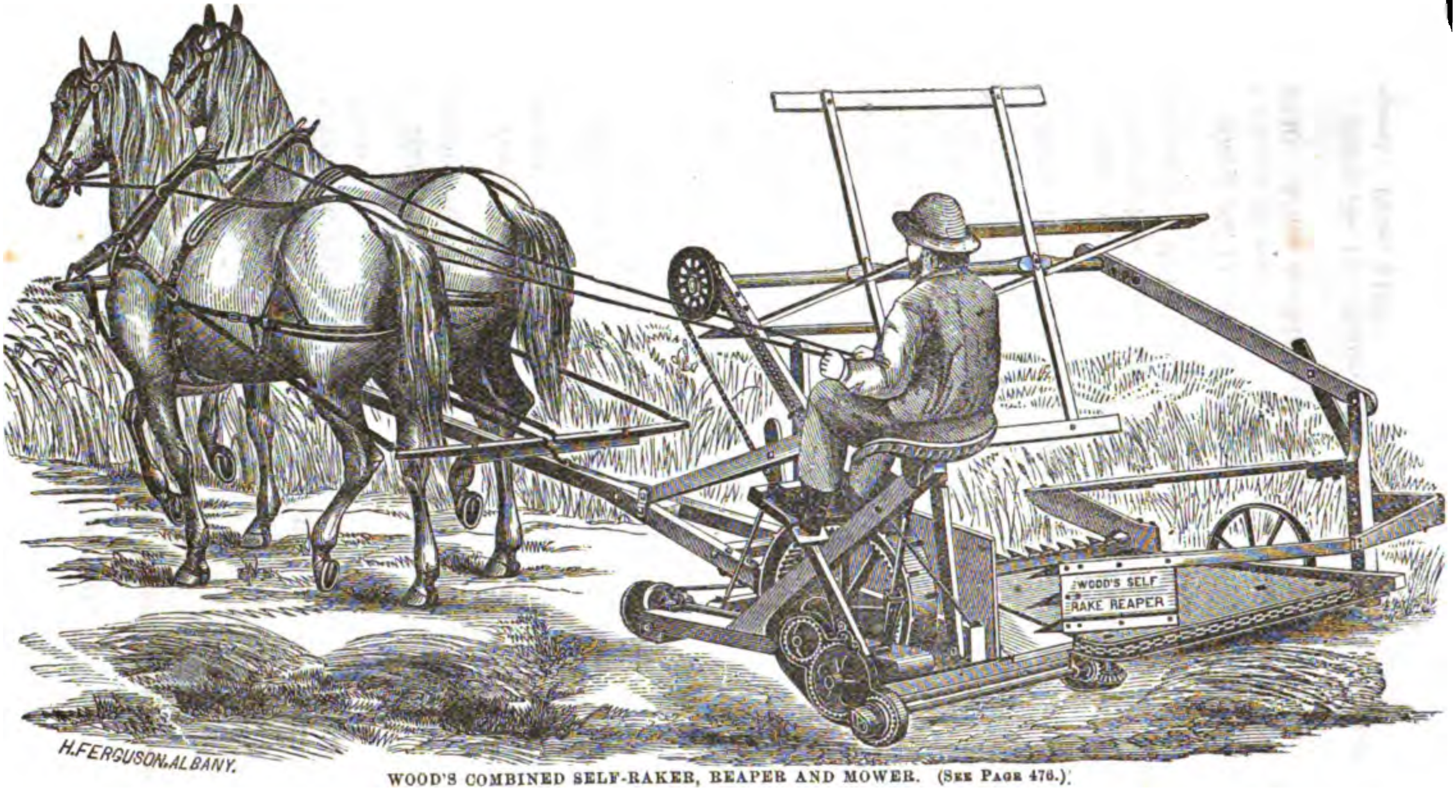
Entry No. 6.—H. J. Prier, Indianapolis, Indiana. W. G. Myers, general agent. Inventor, C. H. McCormick. Appears to be a good, strong machine. Price $180.

Entry No. 7.—Clipper Mower and Reaper Company, Yonkers, New York, with combined dropper attachment. (See cut as mower, page 477.)

Entry No. 8.—R. M. Bishop & Co., Cincinnati, Ohio, Climax Combined, with dropper and changeable speed.

Entry No. 9.—Long, Black & Allstatter, Hamilton, Ohio, Combined Mower and Reaper, with dropper and hand-rake attachment. Price $205. Cutter-bar six feet; said to cut six feet.

Entry No. 10.—Davis, Lawrence & Co., Dublin, Indiana, Ohio Reaper, Ball's patent. Inventor, E. Ball. Manufactured at Dublin, Indiana. Cutter-bar five feet; cuts five feet six inches.



WOOD'S COMBINED SELF-RAKER, REAPER AND MOWER. (SEE PAGE 476.)

Entry No. 11.—A. Pritz & Sons, Dayton, Ohio, Dorsey Combined Mower and Reaper.

MOWERS.

Entry No. 1.—Ætna Manufacturing Company, Bryan, Ohio. H. Byers, general agent. Manufactured at Salem, Ohio.

Entry No. 2.—A. N. Green, Whitney's Point, Broome county, New York, Union Mower; two wheels.

Entry No. 3.—A. N. Green, Whitney's Point, Broome county, New York, Huron Mower, with one wheel.

Entry No. 4.—A. N. Green, Whitney's Point, Broome county, New York, Muron Mower; one-horse.

Entry No. 5.—A. N. Green, Whitney's Point, Broome county, New York.

Entry No. 6.—D. H. Hoover, Miamisburg, Ohio, Mower.

Entry No. 7.—C. J. Brackebush, Indianapolis, Indiana, World Mower. V. A. Miller, general agent. E. Ball, inventor. Cast-iron machine. Price $200.

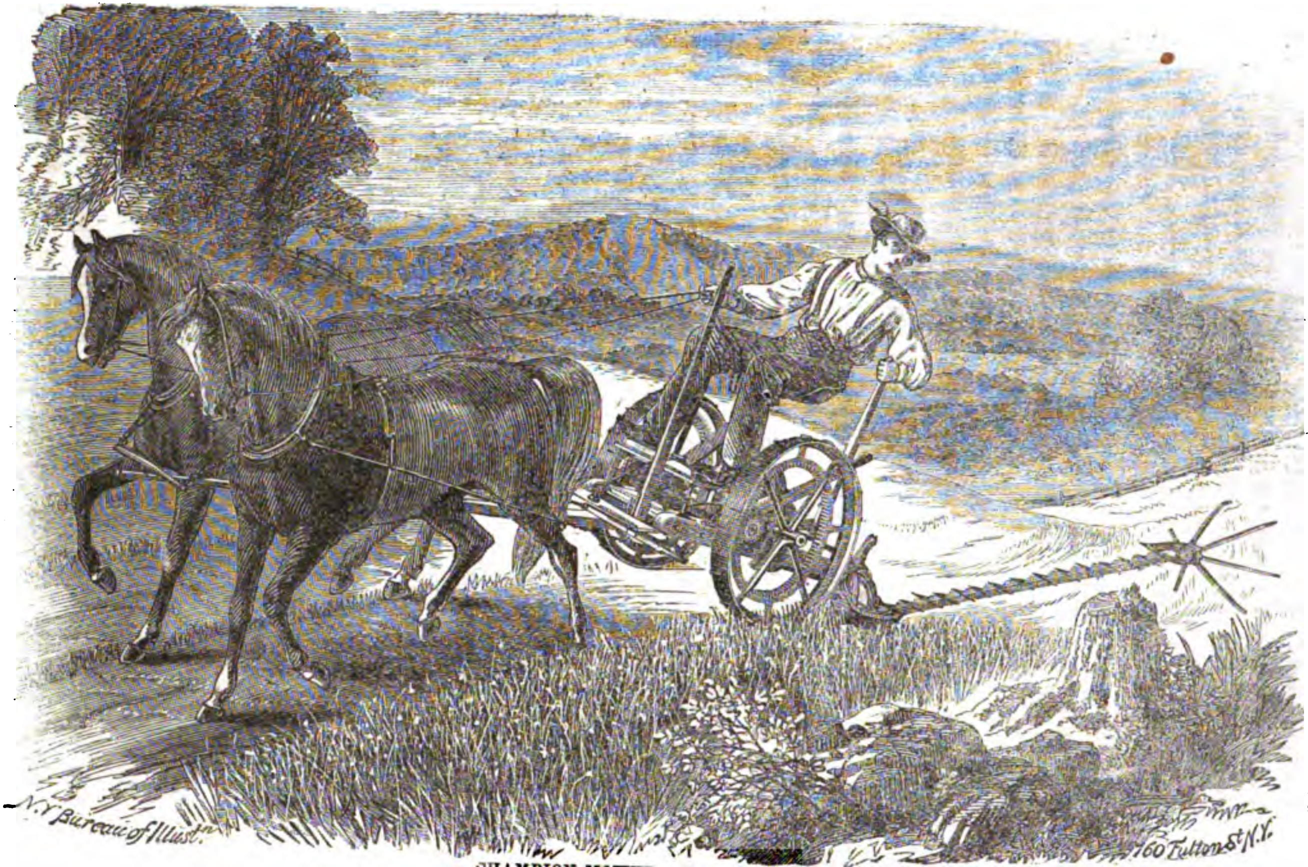
Entry No. 8.—C. J. Brackebush, Indianapolis, Indiana. Same as combined machine. See Entry No. 6. Price $125.

Entry No 9.—H. J. Prier, Indianapolis, Indiana.

Entry No. 10.—Clipper Mower and Reaper Company, Yonkers, New York, Clipper Mower. M. B. Biggs, general agent. R. Dutton, inventor. (See cut, page 477.)

Entry No. 11.—R. M. Bishop & Co., Cincinnati, Ohio, " Climax Senior." Mower, with changeable speed. Price, $140. A fine machine and works well.

Entry No. 12.—Same. Junior Mower, with changeable speed. Price, $130.



CHAMPION MOWER. (SEE PAGE 482.)

Entry No. 13.—Same, Climax Junior. Single speed; double wheel machine, all iron; cast iron box for gearing.

Entry No. 14.—Taber & Co., Salem, Ohio, Improved Quaker. Price, $120, $140, and $175.

Entry No. 15.—D. M. Osborne & Co., Auburn, New York, Combined Mower. General agent, E. H. Valentine. Inventor, W. A. Kirby. A one wheel machine.

Entry No. 16.—Long, Black & Allstatter, Hamilton, Ohio, Iron Mower.

Entry No. 17.—Mansfield Machine Works, Mansfield, Ohio, R. B. Chandler, general agent. Two driving wheels; six wheels in gearing.

Entry No. 18.—G. B. & C. Smith, Wooster, O., Mower.

Entry No. 19.—Cayuga Chief Manufacturing Co., Auburn, New York. M. M. Johnson, general agent. Cayuga Chief, No. 2, a double-jointed machine. Claims the advantage of center-draft. Manufactured at Auburn, N. Y.

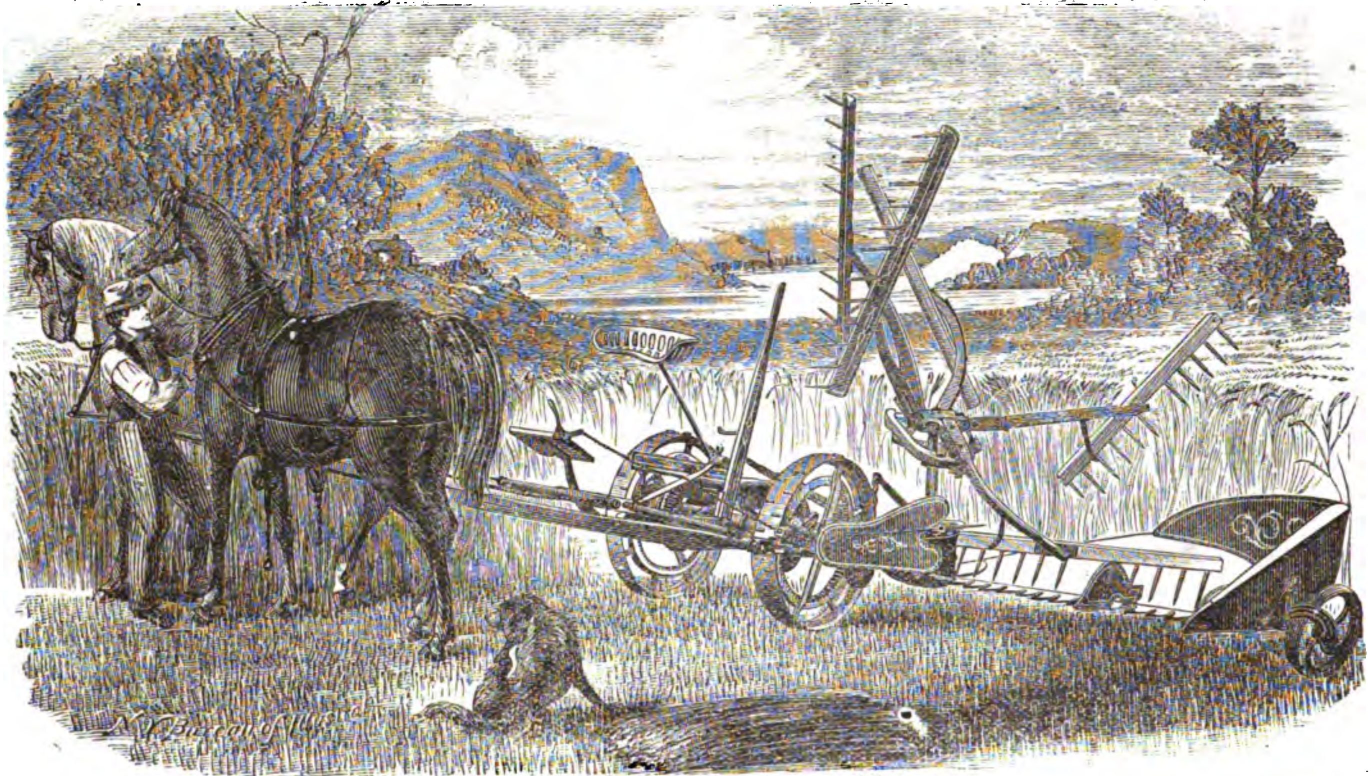
Entry No. 20.—J. George Stiltz, "Champion," for Whiteley, Fassler & Kelly. (See cut on page 481.) Display of various machines, adding much to the exhibition in this class

Entries Nos. 21, 22.—Same. (See cut on page 483.)

Entry No. 23.—Davis, Lawrence & Co., Dublin, Indiana, Ohio Mower.

Entry No. 24.—Young Love, Massey & Co., Cleveland, Ohio. Same as Combined Self-raker No. 18 and No. 12. Price of Mower, $120.

Wood's Mower, E. L. Dexter, general agent; invented by W. A. Wood; Carlos Dickson, agent, Indianapolis; patented April 27th, 1858, May 3d, 1859, etc.; two-wheel machine; sickle in front; steel guard bar; entire draft from center of axle. Price $120. (See cut, page 485.)


N.Y. Bureau of Illus.

CHAMPION SELF-RAKER. (SEE PAGE 482.)

ATTACHMENTS.

Entry No. 1.—Ætna Manufacturing Co., a fine display of parts of mowers and reapers. (See cut of Hay Tedder, exhibited by J. George Stilz, agent, Indianapolis, Indiana, page 487. The introduction of this new and important invention marks a new era in the operation of hay making, affecting as it does, such an immense saving of time and labor, and at a season when they are of such value as to establish itself at once as one of the most valauble and effective labor-saving machines ever offered to the farming community. The real, practical value of the machine can not be fully appreciated, except by those who have seen it in operation; but its perfectly simple and mechanical arrangement, render it apparent at first sight that it must prove an effective machine for turning or tedding hay, and well worthy the attention of all interested in hay making.)

SAW MILLS—FOUR ENTRIES.

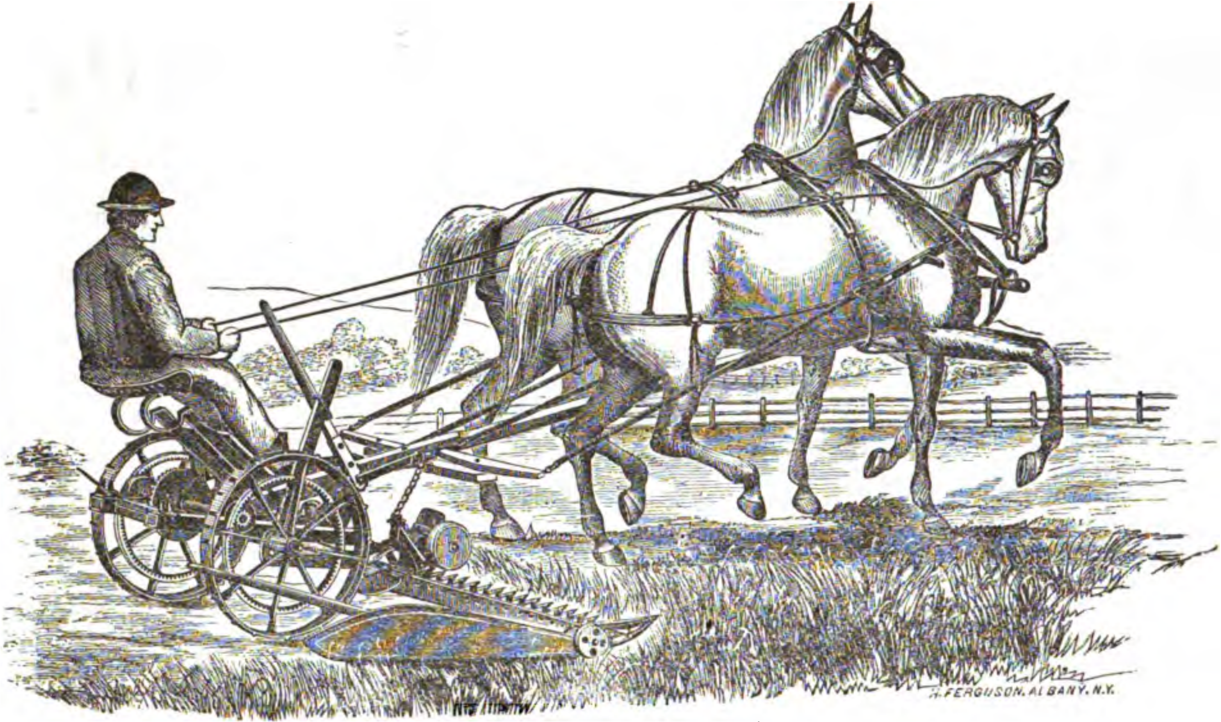
No. 1.—Eagle Machine Works, Indianapolis, Ind.

No. 3.—J. H. Adams, Indianapolis, Ind., improvement of bearing lumber.

No. 2.—Chandler & Taylor, Indianapolis, Muley Saw, run by ten-horse power portable threshing engine, carrying 75 to 78 pounds steam. Run through twelve-foot log, boards two inches, cutting 75 feet of lumber in 5 5-60 minutes. Cost of mill without power, $500. (See page 147.)

No. 4.—E. T. Sinker, Indianopolis, Ind, Circular mill, 60 inch saw; engine carrying at commencement 135 pounds steam, running down at close of trial to 105 pounds of steam. Cutting a log two and a half feet in diameter, making 513 feet of lumber in 7½ minutes; five men employed. (The boiler to the engine exploded.)

No. 1.—Commencing with 120 pounds of steam, cut log 20 inches in diameter in 2½ minutes.


H. FERGUSON. ALBANY. N.Y.

WOOD'S MOWER. (See Page 482.)

SEPARATORS—FOUR ENTRIES.

No. 1.—Eagle Machine Works. Commenced threshing, portable engine carrying 93 pounds, which run up to 120 pounds, threshing 8¼ bushels in 4 5-60 minutes, or 2 bushels per minute. Wheat clean and not cut. A large stone going through the machine at this point prevented a farther test.

No. 2.—A Gaar & Co., Richmond, Indiana.

No. 3.—J. C. Burdsell, South Bend, Indiana.

No. 4.—Yeo & Shoemaker, Richmond, Indiana.

These machines did no threshing, as it was impossible for them to obtain grain, though the exhibitors spent much time to secure it.

DRAG SAWS—THREE ENTRIES.

No. 1.—King & Pinney, Indianapolis, Indiana, sawed off black walnut log, seventeen and one-half inches in diameter, three times in two and one-half minutes.

No. 2.—Chandler & Taylor, Indianapolis, Indiana, horse power and saw on one frame, with an improved saw guide.

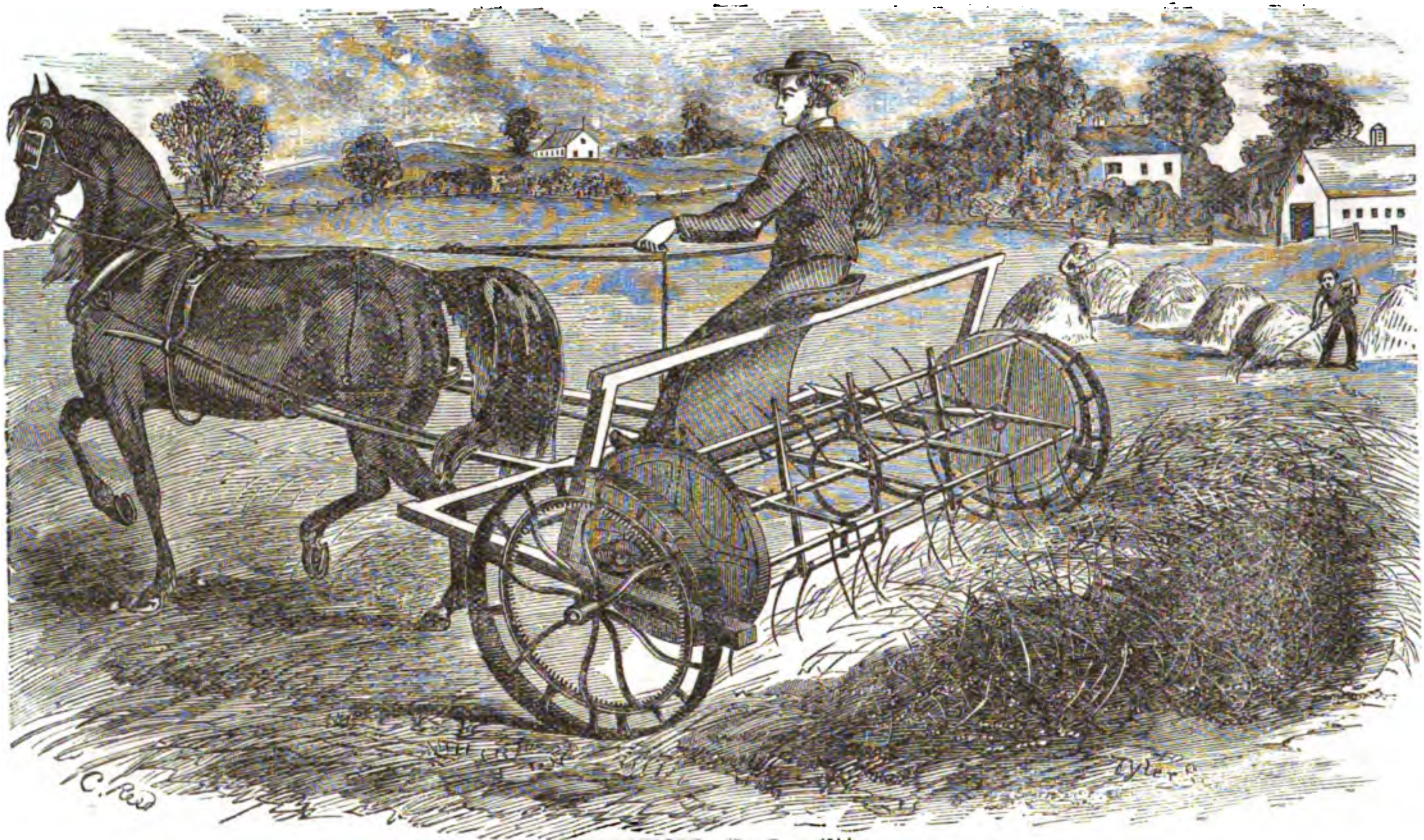
No. 3.—Lauer & Colton, Franklin, Indiana, a convenient device for raising the saw, rolling up the logs, etc., with automatic brake for checking the motion of the saw as it finishes a cut.

PORTABLE ENGINES—THREE ENTRIES.

A. Gaar & Co., Richmond, Indiana; E. T. Sinker & Co., Indianapolis, Indiana; Yeo & Shoemaker, Richmond, Indiana.

SEWING MACHINES—THREE ENTRIES.

No. 1.—A. M. Robinson & Co., Indianapolis, Indiana,



HAY TEDDER. (SEE PAGE 484.)

"American combination button hole over-seaming sewing machine," a shuttle machine, perfect in its construction, does work equal to its competitors, works button holes, over-seems the edge of cloth rapidly and neatly, and in an apparent substantial manner.

No. 2.—A. M. Robinson & Co., Indianapolis, Indiana, American sewing machine.

No. 3.—Nickerson & Douny, Indianapolis, Indiana, the "Weed," a lock-stitch machine, simple in construction; shuttle similar to those most in use; thread not likely to be worn off by the vibrations of the shuttle; three-jointed thread; controller acting much like the human finger; hems beautifully and perfectly.

The foregoing closes the report on this section and leaves me to anticipate what the committee themselves designed to say in this connection. An exhibition in itself of no small portion of the results of American inventive genius, as applied to agricultural labor-saving machinery, all finished in the very best style known to mechanism and art.

"It was harvest time in the fields of Judea. The small, fruitful valleys below the hights of Bethlehem were rich in the splendor of the season, and the ripe fields of grain were rolling in golden waves, stirred by the soft breezes of the Orient. The reapers were busy darting their long, snake-like sickles into the growing corn, snatching it by handfuls, and laying it aside to be bound. The gleaners were scattered over the field, picking up the stray wisps, and laying them aside as their gratuitous share of the harvest. Often they would cast long, lingering looks at the piles of golden sheaves, as they stood ready for the garner.

In one of the fields a damsel, one of the darked-eyed daughters of Israel, was busily engaged in the humble occupation of a gleaner. Her long tunic was girdled about her with charming negligence; her feet were bare, save where the Eastern sandal protected them from the burning soil. The dark, luxuriant tresses, the pride of the Jewish maiden, floated loosely around her shoulders, as she wandered over the fields.

It was Ruth, the daughter-in-law of Naomi, kinswoman of Boaz. She had been sent to the field by her mother-in-law, with the hope that she might find grace in the eyes of her kinsman. About the ninth hour of the day, Boaz, came from Bethlehem to the field where the reapers were at work. He saw the Moabitish damsel, and her comeliness found favor in his eyes. He inquired of the servants who she was, and having ascertained, he approached and commanded her to remain in that field, and glean wheresoever she liked. He instructed his young men to let fall some handfuls that she might pick them up. When the harvest had ended, and the gleaners had laid by their little store, Boaz took Ruth and crowned the harvest home with joy by making her his wife, and the poor gleaner of the fields of Bethlehem became the restorer of the home of Israel, and her name has been cherished with the tenderest recollection throughout all time."

This simple sketch from Bible history has descended to us clothed in the beautiful imagery of the past, or traced upon the canvass in the delicate colorings of the artist. To the student of history and the philosopher, the scenes and story is not devoid of interest. For with them it is a delight to compare the past with the present, and from this cast a horoscope of the future. The genius of invention pores over the sacred page and derives from it instructive lessons by which he may be enabled to increase the comfort, and provide for the growing necessities of man. He sees the reapers in the fields of Judea, and marks how with laborious effort wearisome process, they gather the harvest. Moving along with the advance of civilization and development, he traces all along the path the results of the teachings of that foster-parent of inventors, necessity. The march of mind has always been abreast of the necessities of the age, never in advance. Every invention is typical of the age in which it flourished. The rude sickle of the husbandmen of the earliest ages, is perfectly consistent with their times, customs, and necessities. The wants of primitive man were few. The people were divided into tribes, and their chief support was herds of goats and cattle. The land was broad and thinly settled, and as soon as the herbage was consumed in one place, they folded their tents and moved to another, where the pasture was more abundant. But when the tribes increased and divided into familes, their necessities increased also.

Until this time they had been nomadic in their habits, but now they had became more disposed to remain in one place, and with this change, Agriculture dates its orgin. For it became necessary for them to till the soil and make it produce another crop when they had consumed the first. Implements were of course needed to prepare the soil, and they made them of the rudest description. The plough was for a long time a mere piece ot wood, and the grain was pulled up by the roots. Economy of time and the division of labor soon became the study of the husbandman, and this has been the governing. principle throughout all ages, in every land, until the present time. It is the spirit of every invention, and an essential for its success. The time-honored sickle was the first reaping implement known in sacred or profane history. The reapers filled their hands with the grain, and those who bound up the sheaves, their bosoms. Women were employed in reaping as well as men, and the reapers were usually, entertained above the ranks of common servants. Upon some of the Egyptian obelisks and tombs have been seen sketches of reapers using these sickles, some with smooth, and others serrated edges. In Java an instrument has been in use from time immemorial in reaping grain, and from its uncouthness and seeming lack of utility, it antedates even the sickle. The description of it by early writers is not very accurate, but we would judge that it was merely a block of wood and a knife. . The block was held near the tops of the standing grain, a sharp blow given with the knife, the heads fell into a basket and the process was complete. We doubt not but these primitive implements are in use in certain places to this day, where the influence of civilization is not felt, and the customs and manners of the people are the same now as they were a thousand years ago. The European or American traveler in the interior of Egypt is astonished at the sight of a peasant scratching the earth with a beam of wood, to which is attached a donkey, ox, or even women, as the taste or circumstances of the husbandman may allow. For centuries the same style of agricultural implements were used without variation or improvement. Not even in the full-grown splendor of the Republic did they materially advance. The strength of Greece and Rome (to the mind of their Governors) did not lie in the peasantry but in the soldiery, and the pomp and magnificence of Courts. The æsthetic Athenian was moved by the perfection and symetry of statuary, or the harmonious blending of colors. The valorous Roman saw the perfection of art in his burnished and illustrated shield, and his day-star was the silver eagle of his emperor—his highest aspiration to be first in the fight. Agriculture is one of the peaceful arts, and the breath of the cannon is the bane of its prosperity.

The first machine to reap grain of which any account is given, is one described by Pliny the Elder, who was born about A. D. 23. This was merely a cart of a large size with projecting teeth on the edge, driven on two wheels through the standing grain, by an ox yoked in a reverse position. That is, the ox was so attached as to push the cart backward. By this means the ears were torn off and fell into the cart. This idea of a reaping machine must have been taken from the war-chariots, to the wheels of which were attached massive blades, and the chariots were driven into the ranks of the enemy and a harvest of human heads was the result.

Palludius, an eastern prelate, born A. D. 491, has left an account of a similar reaping machine, from which fact we judge its use must have continued through several centuries. The heads of the grain were caught between the teeth and fell into the cart, leaving the projecting stalks.

The driver was enabled to raise or lower the teeth, to suit the depressions and elevations of the surface.

Whether the inventor of this machine died, and the secret died with him, is not revealed in history, but the fact is known that this is the only record given of mechanical reaping until a recent period. The old custom of the sickle prevailed for centuries, and generations came and went, kingdoms rose and fell like bubbles in the water, but the sickle was not abolished. There were changes in forms of government, from barbarism to half-civilized, and back again to barbarism, and the reapers continued to go forth with their sickles thrown over their backs, and the gleaners were as constant in their occupation. There is yet no symptoms of invention, and the medieval ages close over the face of history and a deep pall obscures the records of those times.

Emerging from this age of superstition and monastic regime, we find an instrument yet in use on the frontier, and popularly known as a cradle. It needs no description, for it is familiar to every reader. We come now to the year 1785, and in that year was made the first proposal for a mechanical reaping machine in Great Britain. In 1788 a reaping machine was invented by Wm. Pitt, of Pinneford. This consisted of a reaping or ripping cylinder, constructed like the cylinder of a threshing machine, with longer and sharper curved teeth. It was suspended in front of a two-wheeled cart and motion communicated to it by means of a band and pulley from the cart-wheel, the teeth hacking off the heads of grain and dropping them into a box behind. In 1799 the invention took the form of a circular cutter, the knife wheel was made to cut like shears against the sharp edges of steel points projecting beyond it into the standing grain. The whole was pushed forward by a horse. The first patent on a reaping machine in England was obtained by Joseph Boyce on the 4th of July, 1799. It was similar in principle to the one last described, though not identical with it.

On the 20th of May, 1800, a patent was granted to

Robert Mears, of Somersetshire, for a machine reaper. This was an apparatus worked by hand, though propelled on wheels. It was simply a large pair of shears on wheels, with two metal fingers, similar to the wooden ones of a cradle. When the shears were thrust forward, the fingers held the grain to their action, the top one bending the grain to one side to let it fall when cut in clips or gavels all in one direction.

The inventions now begin to multiply, but they are devoid of general utility, from the fact that the idea was yet crude and undeveloped. The grand principle had not been touched, and the minds of inventors wavered between shears, cylinders and circular smooth-edged plates. All reforms, it matters not in what branch of industry, social or political economy, proceed by laborious and painful effort.

In 1811 a machine was invented in Scotland, consisting of a conical drum made of tin plate or basket work, to which a circular cutter was attached. The grain was cut by the rapid motion of the cutter, the heads came in contact with the drum, while the lower end rested upon the cutter, and the whole was carried around and laid by the side of the machine. This machine was capable of cutting down, with two horses and a man, an acre of grain in an hour, during which it required to be sharpened four times.

The next step taken toward perfection in reapers was the invention of Donald Cumming, of Northumberland, which consisted of a series of circular cutters, continuously advancing and revolving toward each other. The machines now constructed were noted principally for their complex mechanical contrivance, and were huge and burdensome, although, amid a number of what would be called absurdities at the present, appeared the dawnings of the principle which is the reality of the reaper and mower of the present day.

In 1822 Henry Ogle, of Remington, invented a machine which has the simplicity of modern machines, and also some of the features which are now employed. It had the reel, which is now considered indispensable, and also the peculiar manner of giving the cutter a reciprocatory motion from side to side. It was estimated that this machine would cut fourteen acres per day with ease. Up to this period, notwithstanding the ingenuity which had been expended upon reaping machines, none had been produced which had stood the test of time, or which embraced all the principles which have been incorporated into the effective reapers of the present day. The machine had also ill-repute among the laborers, and Mr. Ogle, the inventor of the last mentioned reaper, said some working people at last threatened to kill Mr. Brown, the maker of the machine, if he persevered any further in it, and he never tried. Like the advent of the steam car, the reaping machine was looked upon as an ill omen, and the laboring class thought it would steal the bread from their mouths and from their children.

In 1826 Rev. Patrick Bell, of Scotland, invented an apparatus for reaping grain, which is the oldest known machine still in use. It had the power to cut down an acre of grain in an hour, and a number of persons have attested that it cut half an acre of heavy lodged oats in half an hour. The proof of the successful working of this machine is unquestionable, although it does not seem to have attracted much attention, as it was lost sight of entirely in England until the great awakening of agricultural industry at the Exhibition in 1851. The improvements now made in reapers and mowers were rapid and decided. America, by the aid of its vigorous and practical intellect, gave an impetus to the work, and placed before the farmers an implement which, to their theories of utility, seemed a "thing of life." American inventors now are numbered among the greatest benefactors of the land, and from the Atlantic in the east to the Pacific in the west, from the frozen waters of the icy ocean in the north to the gulf streams in the south, the prairies and valleys are peopled with active citizens engaged in the arts of industry, the result of the triumph of American invention and American genius. The reaper now follows the pioneer ax, and ere the charred forests on the frontier have moldered into ashes, the busy hum of the reaper is heard in the waving grain, typical of the industry and prosperity of the citizen.

Where the invention itself is of the highest order and its manufacture complete in the minutiæ of detail, carrying out fully the end sought to be attained, what can be superior to the excellence of applied labor-saving machinery save human existence itself?

Improvements in this line may be numbered by the hundreds or thousands, where inventions of the simplest character perform with perfect accuracy the part allotted to them by the hundred per minute, where nimble fingers, it would seem, could only accomplish the task, and then but slowly, indeed, in comparison. Engines, threshers, reapers, mowers and saw mills, perfect in all their parts, finished as parlor ornaments, are but a fractional part of the vast labors now being performed by the mechanic arts for the relief of the agriculturist.

With this great effort at perfection in agricultural machinery, surely the day cannot be far removed when our farmers must indeed realize the hope which they have so long entertained, of "farming made easy."

A great work has surely been accomplished, when State Boards of Agriculture decline to offer premiums on this class of machinery, because "justice cannot be done." In other words, competition is so close, so many of them are so perfect, that there is no practical difference between them; hence, awarding premiums, thus expressing preferences, where there is no practical difference, is doing injustice to the exhibitors.

Cannot some plan be devised whereby this class of manufactures can have an opportunity of showing wherein their particular make of machine is as claimed by them, "superior to all others?" A thorough field-test might afford that opportunity—nothing short of this can; but in that event, how are the defeated competitors to be made satisfied? Will this class of exhibitors continue to assist in making State fairs, with premiums withheld from them?

FIELDING BEELER, *Secretary.*

ADDITIONAL REPORTS

FROM

COUNTY AND DISTRICT SOCIETIES

MADE AT THE

JANUARY MEETING 1870.

Resolved, That the Secretary of the State Board of Agriculture be requested to have published in the Annual Reports of said Board, for the year 1869, the reports of County and District Societies received, if convenient to do so.

In conformity with the foregoing resolution, the following Reports, found among the papers of my predecessor in office, are published in this part of this volume, which was printed to this point previous to the reception of said reports. It is very much desired that every County and District Society should report as early as possible after holding their Annual Fairs, so as to give time, and insure insertion in our Annual Reports.

JOSEPH POOLE,

Secretary of State Board of Agriculture.

HUNTINGTON COUNTY.

The undersigned, President and Secretary of the Huntington County Agricultural Society, would respectfully submit the following report:

To the State Board of Agriculture:

The annual meeting for the election of Officers, is on the first Saturday in December, in each year.

OFFICERS.

P. W. Zent, President.
Francis McKeever, Vice-President.
Daniel Kitch, Treasurer.
Robert Simonton, Secretary.

Directors.—Jerman Bock, Samuel Emly, Moses Maurer, Daniel Shank, Peter Weis, Robert Fyson, George Kline, David Heiny, Aaron McKinney, Thomas Fisher, O. W. Sanger, and John D. Jones.

The grounds belonging to the Society contain twenty-five acres, surrounded with a substantial pine lumber fence eight feet high. Have fine accommodations for water, shade, pleasure riding or driving, halls, stables, stalls, pens for stock, splendid show ring, judges stand, ampitheatre, refreshment stands, and half mile track not surpassed in the State. All being good and substantial improvements, making a convenient and agreeable place for holding exhibitions.

Our first Fair was held on the 28th, 29th and 30th days of September, and the 1st day of October, 1869.

The following is a statement of the number of entries and awards made at our first exhibition.

LIVE STOCK DEPARTMENT.

STOCK.	No. Entries.	Amount Paid.
Hosres for general purposes	34	$98 00
Horses for light harness	26	70 00
Horses for saddle	2	8 00
Trotting and pacing horses	7	33 00
Horses, sweepstakes	8	35 00
Mules and jacks	7	21 00
Thorough-bred cattle	1	5 00
Work oxen and bullocks	4	18 00
Cattle, sweepstakes	2	20 00
Graded cattle	10	39 00
Swine	21	42 00
Swine, sweepstakes	5	5 00
Fine wool sheep	3	13 00
Long wool sheep	5	20 00
Middle wool sheep	17	28 00
Total	152	$455 00

AGRICULTURAL DEPARTMENT.

ARTICLES.	No. Entries.	Amount Paid.
Vegetables	36	$9 00
Grain and seeds	28	23 00
Field crops	3	30 00
Total	67	$62 00

MECHANICAL DEPARTMENT.

ARTICLES.	No. Entries.	Amount Paid.
Wagons, carriages, etc	5	$15 00
Manufactured Articles	15	25 00
Total	20	$40 00

DOMESTIC DEPARTMENT.

ARTICLES.	No. Entries.	Amount Paid.
Miscellaneous articles	40	$21 00
Fruit	13	13 00
Fowls	11	8 00
Manufactured by hand	5	4 00
Manufactured at woolen factory	1	
Needle work, tetting, etc	23	19 75
Needle work, millinery, etc	24	46 00
Flowers	9	9 00
Total	126	$120 75

MISCELLANEOUS DEPARTMENT.

ARTICLES.	No. Entries.	Amount Paid.
Paintings, etc	14	$1 00
Equestrianship	1	25 00
Horses and mules	6	13 00
Trotting and pacing on time	7	170 00
Total	28	$218 00

RECAPITULATION.

Whole number of entries	392
Total amount of premiums paid	$895 75

The following is a report of the Treasurer and Secretary of the receipts and expenditures of the Society for the year ending December 4, 1869.

RECEIPTS.

Amount on loan	$1,470 00	
Amount received during fair	1,511 25	
Amount donated by county	1,000 00	
Amount on membership	250 00	
Amount on rent of grounds	34 50	
Amount for hay and lumber	3 70	
Total receipts		$4,269 45

EXPENDITURES.

Total paid for premiums	$895 75	
Fencing fair grounds	1,195 69	
Buildings and improvements	1,682 09	
Printing and other expenses of fair	270 90	
Total expenditures		$4,044 42
Balance on hand		$225 03

JOHN ROCHE, *Treasurer.*

ROBERT SIMONTON, *Secretary.*

We have now four hundred and fifty-one members, of which two hundred and fifty, with their families, were admitted free this year.

We are greatly encouraged throughout the county, and intend next year to have everything in readiness for a successful fair.

P. W. ZENT, *President.*

ROBERT SIMONTON, *Secretary.*

WARREN COUNTY.

The Secretary of the Grand Prairie Agricultural Society submitted the following report:

To the State Board of Agriculture:

The Grand Prairie Agricultural Society of Warren county, was organized in 1854, and this year has held its fourteenth annual fair.

OFFICERS.

John R. Metsker, President.
S. G. Knour, Vice-President.
David Frazier, Treasurer.
R. G. Odle, Secretary.

The fair for the present year was held on the Society's grounds, adjoining Pine Village, September 8th, 9th, 10th and 11th, and was a decided success.

ENTRIES.

Horses	234
Cattle	47
Jacks and mules	31
Hogs and sheep	78
Products of dairy and fowls	46
Grain, roots and vegetables	81
Fruits and flowers	27
Manufactured and agricultural	85
Ornamental	35
Miscellaneous	59
Total	723

Total receipts of fair, one thousand six hundred and seventy-six dollars, which, after paying premiums in full, together with expenses, leaves a balance in treasury of sixty-six dollars and twelve cents.

The general success of the Society is good, having paid premiums and expenses in full, every year since its organization.

Prof. R. T. Brown, of Indianapolis, delivered the agricultural address, and those who heard him claim that it was a splendid production.

RICHARD G. OLDE, *Secretary.*

SWITZERLAND AND OHIO COUNTY AGRICULTURAL SOCIETY.

The Secretary of the Switzerland and Ohio County Agricultural Society submitted the following report:

To the State Board of Agriculture:

OFFICERS.

V. D. HANNAH, President.
L. W. MALLETT, Vice-President.
SHELOMETH STOW, Treasurer.
WILLIAM ROUS, Secretary.

The eighteenth annual fair of the Switzerland and Ohio Agricultural Society, was held on the fair grounds near East Enterprise, commencing on the 13th of September, and continued five days.

The fair was in every respect a success. On Thursday the attendance was very large, more persons being present than ever before seen at a fair in the district.

The entries numbered 1,033, and the show of articles in all classes was good.

All premiums were paid in full, and after paying the indebtedness hanging over the Society from last year, there is still a small sum remaining in the treasury.

The premiums paid this year amounted to about fifteen hundred dollars.

The Society is in a prosperous condition, and has a bright future before it.

WILLIAM ROUS, *Secretary.*

DEARBORN COUNTY.

The Secretary of the South-Eastern Indiana Agricultural Society submitted the following report:

AURORA, January 1, 1870.

To the State Board of Agriculture:

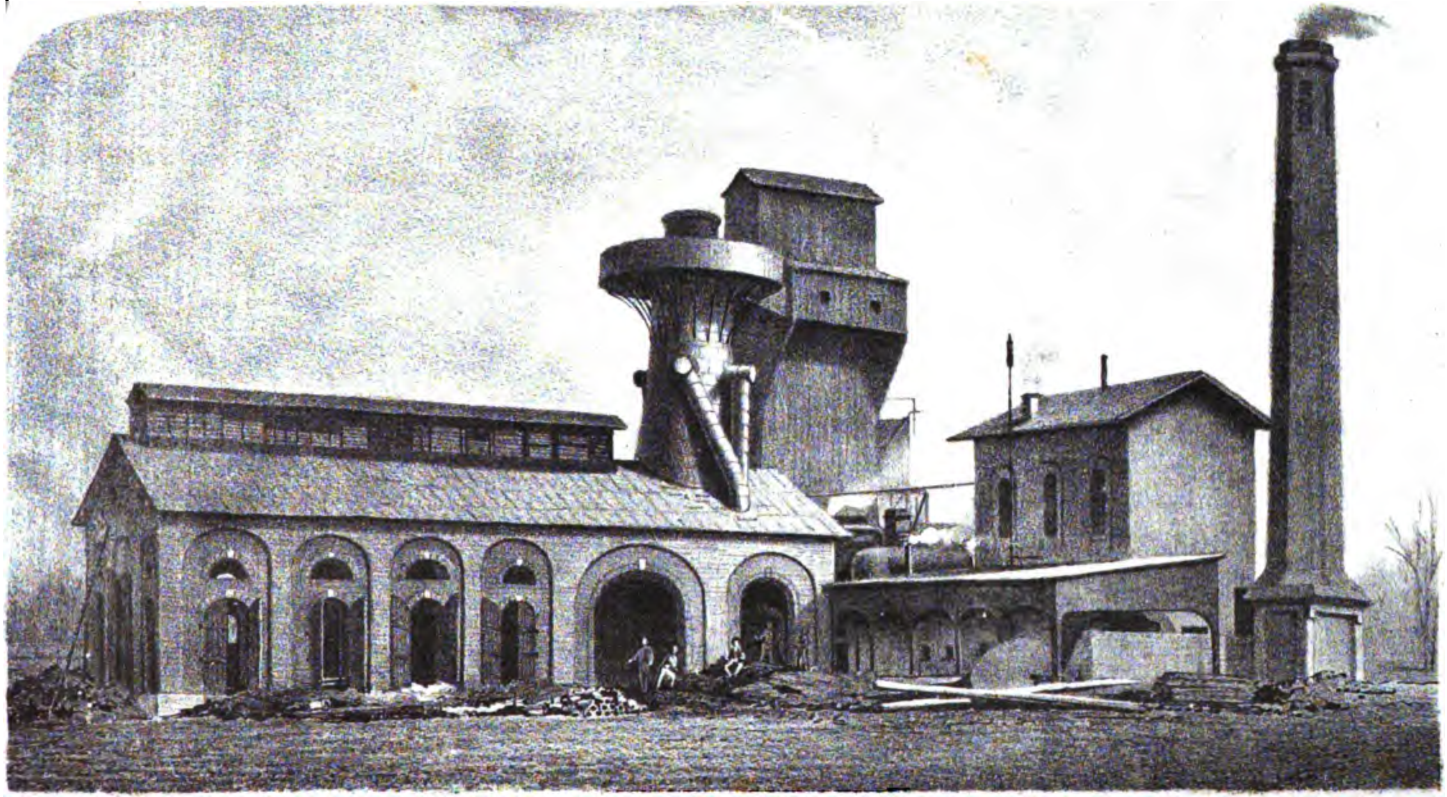
The South-Eastern Indiana Agricultural Society of Aurora, Dearborn county beg leave to make the following report:

The South-Eastern Indiana Agricultural Society is a reorganization of the Dearborn County Agricultural Society of Aurora, which has held annual fairs on the present grounds, adjoining the city of Aurora, since 1856, and have held annual fairs for eighteen years. The present society is organized as a Stock Company. There has been one hundred and twelve shares of stock taken of twenty-five dollars each, and two thousand four hundred and eighty-four dollars and twenty-nine cents, paid in.

The first fair under the present organization, was held on the 7th, 8th, 9th, 10th and 11th days of September last, with what success the following exhibit will show:

Entire receipts		$2,210 10
Paid for premiums	$1,656	
Expenses and fitting up grounds	557	

The grounds of the Society are located adjoining the city limits, and are pleasantly situated, and are held by a deed of trust by the city for the benefit of the Society, with the privilege of using the grounds for public meetings. The entire improvements are owned by the Society, and are worth, including ampitheatre, stables, and other improvements, five thousand dollars, and the amount paid in, as stated before, leaves the Society clear of debt.



BRAZIL FURNACE.
Garlick & Collins, BRAZIL, CLAY CO., IND.

FIRST
ANNUAL REPORT

OF THE

GEOLOGICAL SURVEY

OF

INDIANA,

MADE DURING THE YEAR 1869,

BY

E. T. COX,

STATE GEOLOGIST,

ASSISTED BY

PROF. FRANK H. BRADLEY, DR. RUFUS HAYMOND,
AND DR. G. M. LEVETTE.

INDIANAPOLIS:
ALEXANDER H. CONNER, STATE PRINTER.
1869.

OFFICE OF STATE GEOLOGIST,
January 1, 1870.

To the Honorable the President and Members
of the Indiana State Board of Agriculture:

SIRS: In accordance with my duties as State Geologist, I take pleasure in submitting to you herewith my report of progress for the year 1869.

Very respectfully yours,
E. T. COX,
State Geologist.

INTRODUCTION.

The law passed at the Forty-sixth Regular General Assembly of the State of Indiana creating the office of State Geologist places him at the head of a Geological and Scientific Department, to act in connection with and under the control and management of the Indiana State Board of Agriculture, for the purpose of collecting information designed to promote the interests of agriculture, arts, manufactures, and mining.

The law not only requires of the State Geologist that he shall institute a geological survey to make known the mineral resources of the State, but that he shall likewise establish an analytical laboratory at Indianapolis, fitted up with all the necessary chemical apparatus for analyzing such ores and substances as may be deemed useful to the State, and to build up a Geological and Natural History Cabinet, and to publish the results of his labors in the annual reports of the Indiana State Board of Agriculture.

Soon after receiving the appointment of State Geologist from his Excellency, Conrad Baker, Governor of Indiana, I proceeded to pack my large and valuable collection of minerals, fossils, shells, and other objects of natural history, also my chemicals and chemical apparatus, etc., etc., preparatory to making my residence in Indianapolis, and with a view to arranging them in the rooms of the Geological Department at the State House.

On arriving at the Capitol with this collection, it was soon made manifest that the room set apart for the use of the State Geologist was totally inadequate to hold the matural history specimens and chemical apparatus, and to be used, at the same time, as office and laboratory.

From a high appreciation of the importance of the labor to be performed, the State officers, with one accord, decided to have a small addition, suitable for a chemical laboratory, built on the east side of the State House, adjoining the rooms of the Indiana State Board of Agriculture.

The erection of this addition, together with the time necessarily spent in arranging the office, testing and purifying the chemical reagents, greatly delayed the chemical work, and will account for the limited number of analyses given in this report. But, through the hearty coöperation of our appreciative and energetic State officers, Indianapolis can now boast of one of the best arranged and most completely equipped analytical laboratories in the West. I trust soon to be able to commence a series of elaborate investigations of the iron smelting coals, iron ores and fluxes used in the blast-furnaces of Indiana, that will, it is confidently believed, prove of great utility to the iron-masters, and materially advance the manufacturing interests of the State.

In addition to the delay caused by arranging the office and laboratory, a considerable portion of my time has been taken up in receiving visitors and imparting geological information to capitalists, from various parts of the country, who are desirous of investing their money in the coal lands and in blast-furnaces, and other branches of manufactures in this State. To collect and furnish such information has always given me pleasure, and appears to be strictly in accordance with my duties.

As some of the fruits of the Geological Bureau, already made manifest, it may be stated that it has been the means of drawing the attention of wealthy manufacturers from Pennsylvania, Ohio, and other States, to Indiana, inducing large investments in coal lands, and the taking of decided steps for the erection, at different points, of several new blast-furnaces for smelting iron; also for the building of glass works at Indianapolis.

The gentlemen engaged in the latter enterprise were desirous to learn of the Geological Department if they could find, convenient to Indianapolis, suitable material for the manufacture of glass. Their attention was at once called to specimens of sand suitable for the purpose, from various localities in the State. One of the best samples, a soft, white sandstone, from Pendleton, in Madison county, on the Bellefontaine railroad, about twenty-five miles northeast of this city, was tested in the laboratory and a glass made from it that proved to be as clear as crystalized quartz. The result was entirely satisfactory, and I have been informed that several barrels of the Pendleton sandstone were subsequently shipped to Pittsburgh, Pennsylvania, where similar results were obtained in a practical way in the glass works of that city. Thus, being fully satisfied of the excellence of the sand, fire clay for glass pots, lime, coal, and other material essential to the manufacture of glass, that are to be found here in close proximity, ground has been broken and the glass works are now being rapidly pushed forward to completion. It is but fair to presume from the railroad facilities that give assurance of low freights, and the proximity of Indianapolis to a coal field which furnishes an abundant supply of the best bituminous splint coal for manufacturing purposes to be found in the country, that this pioneer establishment will soon be followed by others.

From the information which has been furnished and the encouragement given to manufacturers, it is believed that the State has already been benefitted more than tenfold the cost of sustaining the geological survey. The above explanation of the duties which have devolved on the State Geologist, outside of field explorations, will serve as an apology for any apparent dereliction of duty or want of finish in the published results of the department for the year 1869.

The limited amount of funds at my disposal would only admit of the employment of a small corps of assistants, who were kept at work but a small portion of the season.

Dr. G. M. Levette, of Indianapolis, has been engaged to collect information on the natural history of the State, and otherwise assist in the laboratory, office, and field work, and I take pleasure in acknowledging the valuable aid which the geological department has received from his labors.

Dr. Rufus Haymond, of Brookville, Franklin county, Indiana, was employed to make a survey and report on Franklin county. Although neither valuable metaliferous ores nor coal are to be found in this county, the law contemplates a complete survey of the entire State, and it was therefore deemed necessary to pay some attention to the resources of such counties as well as those more favored with mineral wealth. Franklin county was selected on account of being the home of the assistant, who was thus enabled to accomplish the same amount of work at a less cost than if sent to some distant county.

Prof. Frank H. Bradley, late of Hanover College, Ind., was engaged to make a survey of Vermillion county, he having previously acquired an extensive knowledge of the geology of that county from examinations made while surveying the adjoining counties in the State of Illinois.

The reports of these gentlemen are herewith respectfully submitted.

My first desire, on commencing the survey of the State, was to confine my own researches in the field, this season, to Clay and Greene counties, on account of the large amount of capital invested in mineral lands and blast-furnaces within their limits. But the great interest manifested, and intense excitement which continues to prevail in the country with regard to the developments of the iron-smelting coal known as "block-coal," subsequently determined me to push my investigations to the northern limits of the coal field in Warren county.

On my first visit to Brazil, in Clay county, the general impression seemed to prevail that the peculiar variety of coal familiarly known as "*block coal*," or "*Brazil coal*," was confined to a small basin, isolated from the great bituminous coal fields of Indiana and Illinois, and limited to an area of a few square miles.

Indeed I found, at Brazil, those who were presuming enough to stand in the door of Rigby's Hotel and point out to me the extreme limits of the "Block coal" field in every direction. Of the fallacy of this prevailing opinion, regarding the coal fields of Indiana, I felt it to be my first duty to disabuse the public mind, and to do so it became necessary to extend the line of observations beyond the bounds first laid down. By thus increasing the field of labor, the survey of Clay and Greene counties has not been made as thorough as desirable, but on the other hand, from the fact that splint, or "block coal," has been traced from the southern limits of Greene county to Warren county on the north, a more extended knowledge of the iron-smelting coal has been acquired, and the mining and manufacturing interests of the State has been more fully advanced.

As the survey progresses, it is my intention to publish maps of each county, on which will be marked the boundaries of geological formations, and the location of coal mines, ore banks, stone quarries, etc., the county maps to be finally collated into a geological map of the entire State. In the present report will be found maps of Greene, Clay and Vermillion counties.

It affords me great pleasure, before closing these introductory remarks, to return my sincere thanks to the citizens of the districts surveyed, for the uniform kindness and attention that has been everywhere received at their hands, and for the deep interest which they manifested in the geological developments of the State.

To the following-named gentlemen I am under special obligations for favors:

Garlick & Collins, Brazil Furnace; William Watson, Superintendent Western Iron Company's Furnace; E. Jones, Superintendent Planet Furnace; John Andrews, Superintendent of Coal Mines at Brazil; John H. Masten, Superintendent Otter Creek Coal Mines; Captain Morris, Superintendent Clay Coal Company's Mines; Henry Ashley, Brazil; David N. Barnett, Barnett's Mine; McClelland & Son, of Brazil; Major W. W. Carter, E. Teter, Esq. Elkins, T. J. Cromwell, of Bowling Green; Hon. J. Cooprider, Middleberry; James Ferguson, Major Morse, Ashboro; Dr. Gilfillan, Centre Point; Alfred West, Cloverland Station, Clay county.

Dr. J. A. Minnick, Esq. Andrews, Worthington; Captain M. H. Shryer, Colonel E. H. C. Cavens, A. G. Cavens, Mr. Clark, Judge Burns, Mr. H. S. Slinkard, Colonel Smith, Dr. Connelly, O. T. Barker, Bloomfield, Greene county.

Dr. Keith, J. R. Madden, and Mr. Armstrong, Edwardsport.

Mr. A. Raney, Bloomington, Morgan county.

Calvin Fletcher, Judge Franklin, Reuben H. Warder, Spencer, Owen county.

Colonel Edwards, W. J. Ball, Jacob Hagar, Terre Haute.

D. C. Donnohue, E. D. Andrews, Greene Castle.

Dr. D. W. Layman and son, W. B. Williams, Putnamville; Hon. A. D. Hamrick, Hamrick's Station, Putnam county.

John Collett, Joseph Collett, Jr., Hon. B. E. Rhoads, Samuel Groenendyke, Vermillion county.

General G. H. Steele, Judge Maxwell, Dr. Rice; Hon. Thomas Rice, William H. Nye, A. Darroch, Rockville; Hon. W. C. Danaldson, Montezuma, Parke county.

Joseph Poole, Secretary Indiana State Board of Agriculture, Marshall M. Milford, Alexander A. Rice, Attica; James McManamy, Mrs. E. M. McDonald, Covington; Norman B. Thomas, Silver Island, Fountain county.

Mrs. Debrow, Williamsport, Warren county.

John Sutherland, La Porte, La Porte county.

John M. Lord, John Thomas, Charles B. Parkman, officers of the Indianapolis Rolling Mill and Planet Furnace; V. Butch & Dickson, White River Valley Rolling Mills; E. J. Peck, John R. Elder, Colonel Harper, Indianapolis.

Also to the officers of the following railroads, for material aid in the way of free passes: Terre Haute & Indianapolis Railroad, Evansville & Crawfordsville Railroad, Indianapolis & Vincennes Railroad, Indianapolis, Cincinnati & Lafayette Railroad; Indianapolis, Peru & Chicago Railroad; Chicago, Cincinnati & Louisville Railway.

GEOLOGY.

The coal measures of Indiana form a portion of what is sometimes called the "Great Illinois Coal Field," a name given to the western coal measures by the late Dr. D. D. Owen, one of the very earliest of our pioneers in geology. This name not only applies to the coal area of Illinois and Indiana, but likewise to that of Western Kentucky, Arkansas, Missouri, Iowa, Kansas and Nebraska, from the fact that, they were all considered as parts of one great basin. The area of the coal measures in Indiana, which, in advance of a computation to be made from an actual detailed survey, may be stated to approximate (6,500) six thousand five hundred square miles, or one-fifth part of the entire State. Insignificant as this coal area may appear when compared to that of the whole United States, which has been estimated at 130,000 square miles, it is, nevertheless, more than half as large as the entire coal area of Great Britain and Ireland.

There are, perhaps, no phenomena connected with the changes to which the surface of this planet has been subjected, that appear so inexplicible and well calculated to fill the mind of the student of geological history with wonder and astonishment, as the occurrence of extended beds of mineral fuel, alternating with shale, sandstone and other rocks, through a great depth of strata. For so vast an accumulation of carbonaceous matter, at first view, there would appear to be no solution found in the causes now in action on the globe. But it is now, however, generally conceded that the deposition must have taken place in water, from the fact of finding associated with the coal, plants that grew in swamps, and the carbon of the plants in such a perfect state of preservation; the latter could not have been the case had the plants, like the forests of the present time, been exposed to the decomposing inflnences of the atmosphere.

Still further argument in favor of the theory that the plants of the coal grew in large marshy lakes, somewhat similar to the peat-bogs of the present time, is afforded by the characteristic beds of clay (fire clay), more or less plastic and arenaceous, which forms the under-stratum to all coal seams—leading to the inference that it formed the soil on which the plants of the coal period grew, being everywhere fiilled with the roots of trees, whose trunks and branches are found preserved in the roof-shales, and sometimes in the coal itself. It is not uncommon to find, in the entries of coal mines, the roof-shales beautifully ornamented with a continuous sheet of the compressed carbonized trunks of *sigillaria lepidodendron*, and other plants, with their surface-marks perfectly distinct and well preserved.

The plants of the coal period were not sub-aqueous, but required the influence of the sun's rays to promote their growth, just as we see in the great peat-bogs of the present time. By long continued subsidence, and subsequent elevation of the surface, the necessary conditions were obtained for the production of the coal.

The carboniferous age occupies a position about midway in that portion of the earth's crust which is accessible for study.

It has been divided into three periods. The lower is largely composed of limestone, and is known as the sub-carboniferous period—mountain limestone of the English geolgists. The middle division forms the true carboniferous period, from the fact of its being the great repository of mineral carbon—stone coal. It is estimated that ninety-nine hundredths of all the coal that is mined comes from this geological period. The permian epoch forms the upper division of the carboniferous age; but, at present, it is a matter of some doubt in the minds of many of our geologists—after considerable strife among them to establish claims to priority of discovery—whether the evidence, so far furnished, will justify its recognition as distinct from the carboniferous period.

The carboniferous period is usually divided into two epochs: millstone grit, or conglomerate, and coal-measures; the latter being again, sometimes, subdivided into lower and upper coal-measures, but I can find no necessity for or evidence to sustain this sub-division, either in Kentucky, Illinois, or Indiana. The upper or barren coal-measures of Owens' Kentucky Reports being nothing more than a repetition of his lower coal-measures seen at localities where, from local causes, the coals are of less thickness, or are entirely wanting, and their places are occupied by shale or other mineral matter. The millstone grit epoch lies at the base of the coal-measures, and is usually represented by a massive sandstone that is nearly always charged wtth quartz pebbles varying in size from a buckshot to that of a quail's egg. Though good thick beds of workable coal are found below this conglomerate in Indiana, Kentucky, and elsewhere in the United States, they are of rare occurrence in England, and the miners of that country have consequently given to it the name of "farewell rock." From the geological position of the millstone grit, it becomes necessary that we should give it our especial study, from the fact of its forming an important horizon to guide the miner in his search after coal—a task that is by no means so easy as at first view might appear, for the massive sandstone, which forms its principal feature, is not everywhere a conglomerate—that is, charged with pebbles—and at very many localities its lithological character appears in no respect to differ from the massive sandstones which are to be found at a higher geological level in the coal-measures. Nor will the proximity of a sandstone to the underlying carboniferous limestone, in the absence of other evidence, serve at all times for its identity, as the millstone grit may be entirely wanting, and its place represented by superior strata, resting on rocks of a much greater age. An example of the latter condition may be seen at La Salle, in Illinois, where the coal-measures are resting on rocks belonging to the lower Silurian age.

The investigations I have made during the last three years in the Western coal fields have led to the discovery of great errors that exist in the reports of previous surveys made in the same district, at least so far as they relate to the coal-measures of Indiana, Western Kentucky, and Southern Illinois.

In the third volume of the Geological Report of Kentucky, pages 18 to 24, the coal-measures are divided into two epochs, designated as *upper* and *lower* coal-measures. The vertical section of the coals given in the above report is adopted entire in the subsequent report of a Geological Reconnoisance of the State of Indiana by Prof. Richard Owen, and an effort is made therein to have all the coal beds of Indiana conform to the arrangement of the coal beds as laid down in the Kentucky section above referred to.

Now, from the best of evidence, I feel authorized to say that this classification of the coals can no longer be retained, neither as regards the division of the strata into epochs, nor in the number and order of the coal beds. What has been designated by Owen and other geologists, in the district above referred to, as *upper* coal-measures, turns out to be merely a repetition of the *lower* coal-measures of the Kentucky section, seen where the shales have an increased thickness; and the beds of coal elsewhere referred to as the *lower* coal measures are either entirely wanting, or are reduced to a few inches in depth. Indeed, all the investigations I have so far been able to make go to show that it is only around the rim or margin of the western coal basin, and not throughout its *central area*, that we are to look for a succession of thick beds of coal. As we approach toward the central part of the basin, the coal beds which surround it are either entirely absent, or have dwindled down to seams that are only a few inches in thickness, their places being occupied by a preponderance of argillaceous shale, some sandstone, and an occasional stratum of limestone.

The increased thickness and lithological character of the strata forming the central area of the Great Illinois Coal Field, with their paucity of coal, appears to point to the fact that their deposition took place in deep and quiet water, where the favorable conditions which prevailed so fully for the accumulation of carbonaceous matter in the shallower waters along the margin, were here, not such as would admit of a luxuriant growth of plants so essential for the formation of thick beds of coal. From numerous irregularities to be found in the coal measures, in many localities, we are further led to conclude that the bottom of the large marsh, or peat bog, in which coal beds were formed, was not an entirely level surface, but was subject to the same changes and inequalities that are to be found in the great peat bogs of the present day; and that it was traversed by streams, both large and small, in such a manner as to cause an accumulation of carbonaceous matter in one locality, and cut it away in others.

From this view of the subject, it is not at all strange that we should find coal absent in strata at some localities which are coal bearing at others.

The conglomerate, and likewise other massive sandstones, are often seen charged with fragments of coal and stems of trees, as though the currents which transported the sand and gravel of which the rock is composed had, in some places at least, cut away underlying coal seams; and it may be observed, as a general rule throughout this coal field, that wherever the usual argillaceous or bituminous roof shales are absent, and the sandstone is found resting immediately on the coal itself, the latter will seldom show its normal depth, from the fact that a portion of the top part of the bed was swept away by the forces which brought in the sand, and, in such cases, it is not at all unusual to find in the sandstone an abundance of plant remains, such as *Lepidodendron*, *Sigillaria*, *Calamites*, etc.

In the chronological arrangement of the western coal beds, published in the third volume Geological Report of Kentucky, and subsequently adopted in the Report of a Geological Reconnoissance of Indiana, published in 1859, there is, in addition to the error of separating the productive and barren coal strata into separate epochs, a further misplacement of strata and duplication of coal beds below the "*Anvil Rock*" *sandstone*, which forms an important geological horizon in western Kentucky and Southern Illinois. Commencing with No. 1, B, of the Kentucky section, which is seen at Cannelton, Indiana, at Hawesville on the opposite side of the river, and at Bell's and Casey's mines on Tradewater river, a few miles to the eastward of Caseyville, on the Ohio river, in Union county, Kentucky, we have a generally recognized synchronism over a broad area of the coal measures, for the first bed of coal above the conglomerate that is of sufficient thickness to be economically worked.

Now, assuming this coal bed to be correctly placed, there is, thirty or forty feet above it, a thin seam, No. 2, that is nowhere over the district mentioned thick enough to work. But the "*Ice-house*" coal, No. 3, is the equivelant of No. 1, B, it having been mistaken for a higher coal. And the "*Curlew coal*," No. 4, is the equivalent of No. 11. Being seen in the Curlew hill, near Caseyville, it was mistaken for a lower coal.

The massive sandstone above the "*Curlew coal*," designated as the "*Mahoning sandstone*," in the reports above referred to, is consequently nothing more nor less than the "*Anvil Rock*" *sandstone* seen at another locality.

In consequence of the magnitude of these errors, the usefulness of the Kentucky section is completely destroyed in so far as regards the synchronism of coal beds, and its adoption, long unquestioned in this State, has been productive of much confusion.

In advance of a more thorough study of the coal measures of this State, it is a matter of some importance to be able to decide upon a system of numbering that will not prove objectionable before the completion of the survey, and yet enable us to show at a glance, in each section, the equivalent beds of coal. For the present, therefore, I have thought best to omit the system of numbers, and adopt, instead thereof, corresponding letters for equivalent coal beds. By this means we may be able to construct, after completing the detailed survey of the coal measures, a general vertical section that will prove harmonious in all its parts.

Notwithstanding the amount of study that has already been given by geologists to the coal measures of the West, we are just beginning to clear away the errors of preconceived notions, and instead of building conclusions upon speculative theories, the theories themselves are being made to rest upon *bona fide* examinations and well authenticated facts.

In tracing a seam of coal, it must be borne in mind that the quality of the coal in any given seam will seldom serve for its identity over any great extent of country, as in this respect it is subject to great variation. The same seam may be a free burning, hard, bituminous splint coal in one place, and a caking highly bituminous soft coal at another; nor will it do to rely upon the thickness of a bed of coal as a sure means of identity over any great extent of country, as in this it is also subject to great changes.

A single coal bed seldom exceeds five or six feet in thickness; when of greater thickness than this it is apt to contain a parting of fire-clay, which tends to show that it is a double seam, and liable, in other localities, to be separated by many feet of strata.

The efforts that have been made to identify the coal seams by the organic remains found in the roof shales, have also proved equally uncertain.

In consideration of the above facts, we are led to the conclusion that the only sure way of tracing the identity of a coal seam over a great extent of country, is to pay strict attention to the study of all the accompanying strata.

CLAY COUNTY.

This county is bounded on the north by Parke, on the east by Putnam and Owen, on the south by Greene, and on the West by Sullivan and Vigo counties. Its topography is marked by no very great diversity of surface; the hills are low, and present but few mural precipices where cut by the streams, being for the most part composed of argillaceous and arenaceous shales, rarely flagstones and thick bedded sandstones; they are capped with a thick deposit of glacial clay and gravel, with some boulders. A large portion of the county may be termed level, and from the tenacity with which the clay soil retains water, it is, for a part of the year, inclined to be wet. The principal water-course is Eel river, a branch of the west fork of White river; it crosses the southern part of the county from east to south-west, and thence in a south-east direction in such a manner as to form a large triangular shaped bend; and contains throughout this part of its course a succession of remarkable horseshoe-like crooks; Birch creek and Croy's creek are tributaries of Eel river; the source of the former is near the town of Brazil, and with its tributaries drains the middle part of the county. The latter heads in the northern part of Putnam county, and flows through the north-eastern corner of Clay. The headwaters of north and south Otter creeks flow through the middle and western portions of the northern townships, in a westerly direction, forming, at their junction in Vigo county, Otter creek, a tributary of the Wabash river. Jordan and Six-mile creek are tributaries of Eel river, the former forms its junction at Bowling Green, and the latter at Bellcair.

The Wabash and Erie Canal, (now abandoned south of Terre Haute,) passed through the south-west corner of the county. The supply of water for this part of the canal was obtained from the great reservoirs fed by Eel river and Birch creek. Splunge creek reservoir contained four thousand acres, and the Birch creek reservoir, fourteen hundred.

When these immense reservoirs were constructed, the ground was covered by a dense forest growth, but the stagnant water killed the trees and caused the vegetation to decay, thus loading the air with miasmatic poison to an extent that jeopardized the health of the county for many miles around; therefore, considering themselves aggrieved, and seeing no chance for redress in the courts, the citizens of that part of Clay county bordering on the reservoirs resolved to take the law into their own hands, and, assembling in force, cut the embankments and let out the water. Troops were sent out by the Governor of the State to bring the guilty parties to justice, but resistance on the part of the citizens seemed so determined, and the impracticability of keeping up the canal having become apparent to most persons, it was finally concluded to let the matter rest, and the reservoirs no longer exist except in name, so that we could not even, at this time, find the exact locality of the one fed by Birch creek, in order to mark its original outline on the map.

The Terre Haute & Indianapolis and the Indianapolis & St. Louis railroads cross the "*block coal*" field in the northern part of the county, running nearly parallel with each other, and only about five miles apart. The former is one of the best managed railroads in the West. The track is always kept in the best of order, and the officers furnish every facility in their power to promote the large mining and manufacturing interests along the line of their road. Branch roads or switches have been built to the blast furnaces and to the most important coal mines now opened, both to the north and south of the main line, as shown on the map accompanying this report, making, in the aggregate, about fifteen miles of additional railroad facilities. Four passenger and six regular freight trains run daily each way over this road, and when it is borne in mind that nearly every regular freight train "flags" another, and that fully one-half of this business is derived from a very small part of the coal lands of this county, some idea may be formed of its vast mineral resources, which are just beginning to be developed.

The Indianapolis & St. Louis railroad is not yet completed, but the work of construction is being rapidly pushed forward, and it is confidently believed that trains will be running through on this road early next summer. As this road also crosses the "block coal" belt in Clay county, some five miles north of the Terre Haute & Indianapolis railroad, there is every reason to believe that it will furnish along its line equal facitities for coal mines and blast furnaces.

Besides these two roads, a charter has been obtained for a railroad to run from Newburg, in Warrick county, on the Ohio river, in a northerly direction to Attica, in Fountain county. This road will run through the central part of Clay county, passing on its way through Bowling Green, Center Point, Brazil, and Carbon. Being located in the heart of the coal field, it will, when completed, afford fine mining facilities from one end of the line to the other. As nearly all the counties through which it will pass have voted liberal donations to aid in its construction, there is, consequently, a fair prospect that it will be built.

GEOLOGY OF CLAY COUNTY.

Clay county is situated on the eastern margin of the Illinois coal field, and contains within its area rocks belonging to the following geological divisions, namely:

Subcarboniferous limestone.
Millstone grit.
Coal measures.
Glacial or drift.

The subcarboniferous limestone formation embraces the oldest stratified rocks found in the county. The only outcrop of this limestone, which I saw, is exposed in the bank of Jordan creek, where it cuts through a ridge, one and a quarter miles northwest of Bowling Green, in the northeast quarter of section eighteen, town eleven, range five west. At this point of exposure it is about ten feet thick, and contains characteristic fossils. *Productus cora*, *Pentramites pyraformis*, *Say. Sprifer incrassatus*, *Athyris subtilita*, and some fragments of unrecognized shells were seen. Above the limestone, at this locality, there is about thirty feet of arenaceous shale, with a considerable quantity of hydrated brown oxide of iron. This ore occupies the same geological horizon as the heavy deposits of iron ore found to the south, in Greene county, and being on the "line of strike," or outcrop, from the latter locality, it may prove to be extensive and valuable; at least the indications are sufficiently favorable to warrant me in recommending further search by sinking a few shallow shafts along its out-crop. The millstone grit epoch follows immediately above this limestone in regular sequence, and is very variable in its lithological character, and carries two or more coal beds. It is sometimes represented by a massive, coarse-grained rock, sixty to seventy feet thick, specked with peroxide of iron, and is usually separated into two beds by a parting of shale, with six to twelve inches of coal. At other points the massive rock is entirely replaced by a great depth of arenaceous shales, containing no coal. This massive rock is quite soft when first quarried from the bank, but soon becomes very hard on being exposed to the influence of the air. It varies in color from light buff to brownish red, and can be quarried in blocks of large dimensions. At most quarries it presents the character of a fair building stone.

Around Bowling Green the millstone grit is largely composed of arenaceous shales, with here and there a layer of very good building stone, specimens of which may be seen in the jail, which is built of sandstone, quarried a short distance south of the town. On the opposite side of the ridge in which the sub-carboniferous limestone is exposed, and in the same section, town, and range, the following section is seen, the lower coal of which belongs, apparently, just above the shales over the limestone. The connected section for the locality of Bowling Green is therefore:

Drift, gravel, and clay,	20 ft.
Shale and schistose sandstone,	15 ft.
Coal B.,	1 ft.
Fine potter's clay,	3 ft; 6 in.
Bluish-black argillaceous shale and rash-coal,	7 to 8 ft.
Coal A. ("block coal,")	1 ft. 3 in.
Fire clay with stigmaria,	? ft.
Arenaceous shale,	30 ft.
Subcarboniferous limestone,	10 ft.
Low water of Jordan creek,	0 ft.
	88 ft. 9 in.

Coals A. and B. were opened and worked to a small extent, for neighborhood use, by Esquire Elkins, of Bowling Green. The quality of the coal is good, but the seams are too thin to prove remunerative. The fire clay under B. is light colored and very plastic, and is adapted for the manufacture of stoneware. The shales above A. are filled with beautiful coal plants, that are difficult to preserve, on account of the friable nature of the shale. *Neuropteris Loschii, N. hirsuta, Sphenophyllum Schlotheimii, and Pecopteris arborescence;* large fruit, flattened trunks of *Sigillaria, Lepidodendron, and Calamites.*

Descending the hill on the east side of Bowling Green, the road cut exposes the following section:

Soil and drift,	30 ft.
Whitish-gray flagstones (place building stone,)	20 ft.
Coal B,	1 ft.
Fire clay,	2 ft.
Silicious shale,	13 ft.
	66 ft.

A quarter of a mile beyond, in a ravine, there is to be seen below this section three feet of coal-rash, resting on hard, arenaceous fire clay. On going up this ravine, the coal-rash rises rapidly with the hill, and before reaching the top, it is united with the thin coal B., which is here overlaid by a thin, schistose, rough weathering sandstone, with marks of false bedding in places. Here, in the coal-rash, we also find an abundance of compressed trunks of coal-measure trees belonging to the same genera above noted.

Near Eel river, in the north edge of the town of Bowling Green, some time before my visit to the place, a shallow bore was made, which passed through a thin coal, (probably B.,) and the coal-rash of the above section. I was unable to learn any further particulars regarding the strata passed through in this bore, or the depth of it, but it is generally conceded that it is of but little depth. Sixty or seventy feet would surely have reached the subcarboniferous limestone, making a reasonable allowance for the thickening of the siliceous rocks to the westward of the exposure of this limestone on Jordan creek, in section eighteen, town ten, range five west. The ridge of millstone grit on which Bowling Green is situated, bears away to the south, touching Eel river just below Belleair, where it forms an abrupt escarpment on the east bank of the stream. The upper part being a heavy bedded, rough sandstone, the lower part shaley, with five or six bands of ironstone, in all from four to six inches thick. The latter is underlaid by shales and a thin coal. This coal was covered with water at the time of my visit, it being in the bed of the river, and is only exposed at low water. It is reported to be twenty inches thick, and is probably the equivalent of coal A. The section made of the rocks in the bank of the river, immediately above the coal, which is in section thirty-four, town eleven, range six west, and several hundred yards below the bluff of bedded sandstone, is here given. (Three feet of the lower part is given from report):

Soil and drift, ...	6 ft.
Blue argillaceous shale, with four to six inches of ironstone, . . .	5 ft.
Schistose sandstone, with marks of false bedding, ...	8 ft.

Coal A.,	1 ft. 8 in.
Bed of Eel river,	0 ft. 0 in.
	20 ft. 8 in.

Coals A. and B. outcrop, also, in a ravine, near Mr. Kincaid's house, in section twenty-one, town eleven, range five west, where I obtained the following section:

Drift,	8 ft.
Coal dirt, (B ?),	– ft.
Siliceous shale, fissile,	10 feet.
Siliceous shale, compact,	2 ft.
Coal (A ?) "block coal,"	1 ft.
Very white fire clay,	2 to 3 ft.

Two hundred yards further down the branch, into which the waters of this ravine run, the siliceous shale of the above section is replaced by a compact sandstone, from the base of which—and probably from off the coal—there breaks up in the bed of the branch a spring of mineral water, charged with carbonate of protoxide of iron, sulphate of protoxide of iron, and other mineral salts, most likely derived from the pyritic shales which form the roof of the coal.

From Bowling Green the millstone grit passes southward in the direction of Hausertown, in Owen county, and strikes White river at Point Commerce, in Greene county. Another branch of the main ridge, which starts off from the neighborhood of Hausertown, passes to the westward of Worthington, in Greene county, and crosses White river at the point known as "the Ripple," a few miles above Fairplay ferry; and to the northward of Bowling Green it skirts along the entire eastern boundary of the county, and in places extends in tongue-shaped points far out into Putnam county. At the base of the millstone grit is the great repository of limonite iron ore, not only in this State, but likewise in Ohio, Kentucky, Tennessee, Illinois, Missouri, Arkansas, and the territory of New Mexico. And in Clay county we find more or less iron ore all along its outcrop, but the main deposits yet seen lie to the southward in Greene county.

When argillaceous shales predominate at the base of this formation, the iron ore partakes of the character of an earthy carbonate, and lies in bands stratified with the shale; where sandstone forms the base, the iron ore is a silicious brown oxide.

The first variety of ore has been mined to a considerable extent south of Eaglesfield, in the western border of Putnam county, and smelted at the Planet furnace, but the expense of mining and transporting the ore to the furnace was too great to prove remunerative, and the mines have been abandoned.

The ore band is only four to six inches thick, and could only be mined by removing a large amount of worthless material, after which it had to be hauled two and a half miles to the railroad. The silicious oxide of iron is found in vast quantities in Greene county, and still further to the southward, which leads me to infer that it will yet be found abundant to the northward of that county, along the outcrop of the millstone grit.

At no place along the line of my survey has the millstone grit been represented by a conglomerate, or sandstone charged with quartz pebbles, but it varies in its lithological features from a thick bedded sandstone, of various colors, to silicious shale; its total depth is very irregular, also, being much greater at some places than at others.

This frequent variation in the depth and character of these strata, renders the study of the millstone grit epoch very difficult, especially in this region, and it is therefore quite possible that I have, in some places, along the margin of the basin, committed the error of mistaking its shales for coal-measure strata, and *vice versa*, especially where the country is level, and no well marked characters can be found to serve as a guide; for it must be borne in mind that in this part of the carboniferous basin the millstone grit is coal bearing, and the quality of its coal appears to differ, in no respect from the true coal measure beds, being, like them, "block," or non-caking coal.

COAL MEASURES.

In order to show more clearly the position of the coal strata and subordinate formations in Clay county, a vertical section is given, which represents the geological order of the strata between Greene Castle on the east and Terre Haute on the west, constructed from outcrops along the line of the Terre Haute and Indianapolis railroad, and from the record of deep bores. (*See colored section.*)

In the city of Terre Haute, at about the level of the crossing of the Terre Haute & Indianapolis and the Evansville & Crawfordsville railroads, a bore was made for Mr. Chauncey Rose, which went to the depth of seventeen hundred and ninety-three (1793) feet, passing through the carboniferous, and stopped in the subcarboniferous rocks, just above the Marcellus shale, as I propose to show, by the comparison of its section with that of other bores.

At Terre Haute, three horizons of salt water are noted in the carboniferous strata, and there are probably others, still lower down, that are not recorded, for the reason, possibly, that the brine above was not stopped out but allowed to fill the bore for some depth below.* A "show of oil" and two oil-veins were passed, from the lower of which there was a considerable flow of oil. The sulphur-water which is found in the lower one hundred feet, rises to a considerable elevation above the surface, with an irregular pulsating flow, and is mixed with gas emitting a strong odor of sulphuretted hydrogen, and leaves on the reservoir a deposit of sulphur. The analysis made of this water, for Mr. Rose, by J. G. Pohle, M. D., indicates that it possesses fine medicinal properties. From one gallon of the water he obtained 365.067 grains of solid matter, composed of

Chloride of Sodium, . .	316.000	grains.
Chloride of Magnesium, . .	6.428	"
Chloride of Calcium, . .	4.816	"
Chloride of Potassium, . .	1.232	"

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* Since writing the above I have been credibly informed that good brine was reached at several horizons in this space, and that at thirteen hundred feet a brine was struck which indicated 13° on Baume's Saltometer. Fifty gallons of brine of this strength will make one bushel of salt, fifty-six pounds.

Bicarbonate of Soda, . . .	.520	grains.
Sulphate of Lime, . . .	2.325	"
Bicarbonate of Magnesia, .	6.420	"
Bicarbonate of Lime, . . .	25,026	"
Silicic Acid and Alumina, .	1.200	"
Nitroginous organic matter, .	1.100	"
Bromide of Magnesium, .	trace.	
Sulphate of Calcium, . .	trace.	
Phosphates of Lime, . .	trace.	
Also, Sulphuretted Hydrogen, and Carbonic gas.		
	365.067	grains.

For the record of the bore at Reelsville, on the Walnut Fork of Eel river, in Putnam county, I am indebted to Mr. David N. Barnett, who lives a few miles south of the well. This bore is twelve hundred and forty (1240) feet deep, and notwithstanding it commences by the railroad levels, one huudred and seventy-six (176) feet above Terre Haute, it starts in strata that are geologically seven hundred and fifty-four (754) feet below the surface at that place, and penetrates strata that are two hundred and fifty (250) feet below the bottom of the Terre Haute artesian well.

This difference in the geological horizons of the two places is readily accounted for, by a very slight dip of the strata to the west. At Reelsville four horizons of salt water are passed, one in the subcarboniferous limestone, two in the subcarboniferous sandstone, and the fourth below the Marcellus shale, and probably in the Devonian. Near the bottom of the well, and in silurian strata, artesian sulphur-water is reached, that appears, from the taste, to be very similar, in its mineral constituents, to the artesian water at Terre Haute. It rises in a copious stream to the height of twenty feet, or more, above the surface.

Another great well was bored for oil, at Lodi, in the south-west corner of Fountain county, which passed through five distinct horizons of salt water, one in the coal-measures, another at the base of the millstone grit, and three in the subcarboniferous sandstone; the lower brine, marked seven and a half degrees of Baumé, being equal in strength to the brine at Kanawha.

For a detailed, highly interesting and accurate record of the bore at Lodi, I am under obligations to Mr. John Collett, of Eugene, in Vermillion county, Indiana, who carefully examined the borings as they were brought up, and noted down his observations at the time, in a book which is replete with information concerning the materials passed through. At about the same geological level as in the well at Reelsville, a most remarkable stream of sulphur-water was reached, which rushed with tremendous force up a ten-inch tube to the height of forty-three feet above the level of the ground, and discharges about one hundred thousand barrels of water per day. An analysis of this water was made by Dr. Pohle, from which it appears to be one of the most remarkable and valuable medicinal waters found in the world. Around the well sulphur is deposited in solid flakes on every substance which is reached by the spray from this gigantic fountain, and the odor of sulphydric acid may be readily perceived, under favorable conditions, at a distance of half a mile from the well.

The Marcellus shale, which is also found in the Lodi bore, being everywhere a black bituminous rock, that will burn when thrown on the fire so long as the bitumen lasts with which it is charged, but its stony substance remains unchanged, and though often mistaken by the uninitiated for coal, on account of its color and limited inflamability, it is entirely worthless for fuel; but, on account of its marked features and great depth, being seventy feet at Reelsville and sixty feet nine inches at Lodi, as shown by the bores; it is of special importance as a guide to the geologist, from its forming a conspicuous horizon that is readily recognized by the well-borer.

Now, taking this Marcellus shale as an established base, and arrange accordingly the sections of the three bores,

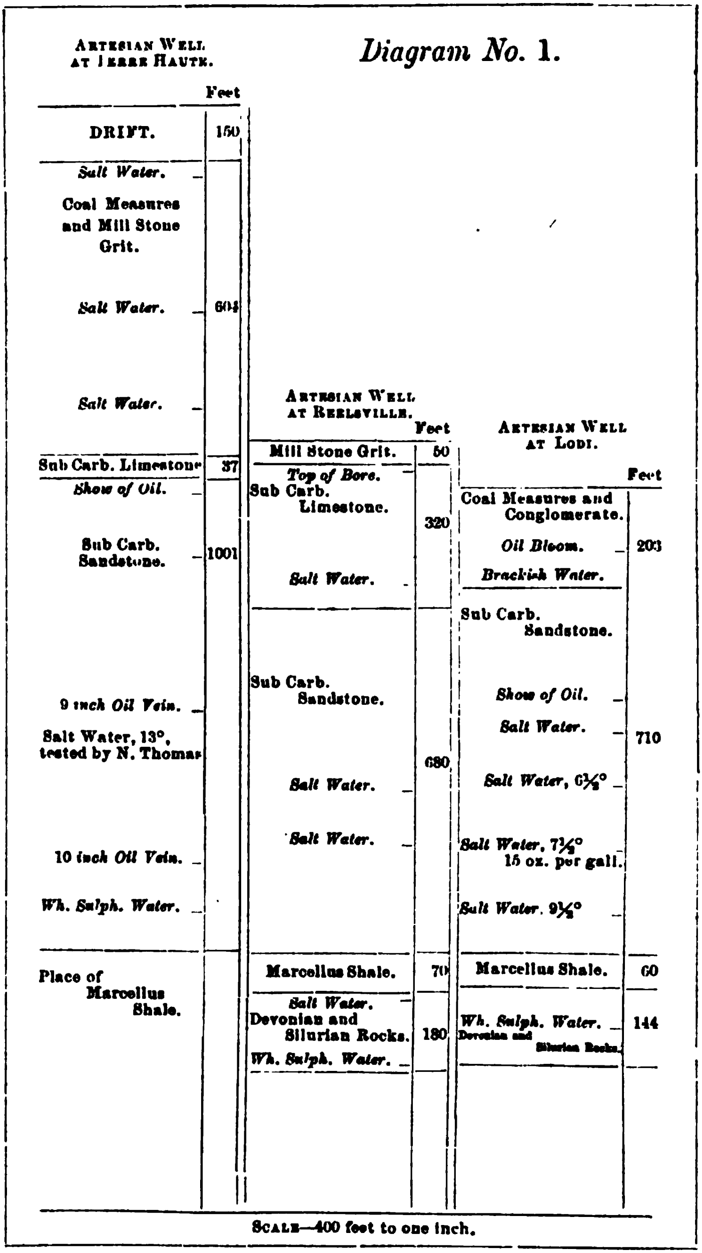
Diagram No. 1.

Scale—400 feet to one inch.

just spoken of, side by side, as shown in the accompanying diagram, No. 1, and assuming that the bore at Terre Haute stopped near the top of the Marcellus shale, a remarkable correspondence of the strata is perceived in the two bores, the agreement being almost as close as one could expect to find in two bores at a much less distance apart.

As we go westward the subcarboniferous limestone appears to have given place to shale and sandstone.* The former is three hundred and twenty feet thick at Reelsville, but is only thirty-seven feet thick at Terre Haute, and was not found at all at Lodi—though a few feet of limestone, equavalent to the Keokuk limestone, is seen at the base of the millstone grit at Williamsport, about twenty-five miles a little east of north, from the former place.

In the record of the bore at Lodi, Mr. Collett, for whose opinion I have great respect, marks the base of the conglomerate at five hundred and sixty-five feet; but in this I must differ from him, and place it as shown in Diagram No. 1, at the depth of two hundred and three feet and nine inches. In justification of this correction, it may be well to state, that the millstone grit is found a few miles to the northeast and south of Lodi, and is universally along the margin of the basin, overlaid by coal seams, with no great space intervening, and very often coal is found below it.

The horizons of salt water correspond so completely in the two bores that we are at once led to conclude that throughout Clay county, and the entire coal field of this State, deep wells are likely to reach good salt water, equal in strength to the brines on the Kenawha river in Virginia at about the levels indicated on the section of the bores in the preceding diagram.

On account of the great development of the subcarboniferous sandstones and shales in which petroleum is found so abundant in Pennsylvania, Ohio, and West Virginia, our prospect for oil in this part of Indiana is not so discouraging as geologists have, heretofore, been led to believe. In fact, from the present evidence, there is strong probability that oil may be found in sufficient quantities to pay for working. The few unsuccessful wells that have been bored in Indiana serve by no means to definitely settle the question with regard to the possibility of finding oil in paying quantities, nor to discourage further efforts in its search. In Pennsylvania, and elsewhere, we find numerous wells bored that fail to reach oil; indeed, it is a well established fact that barren wells are more numerous than productive ones in the most highly favored oil territory. Measuring from the Marcellus shale (on Diagram No. 1) upwards, the space between it and the millstone grit, at Reelsville, is one thousand feet; at Lodi, seven hundred and ten feet; and at Terre Haute, (assuming that the bottom of the bore at that place is near the top of this shale,) one thousand and thirty-eight feet. Now, since the *colored section* is made to a scale of two hundred feet to the inch, in vertical height, the depth to which a bore will have to go to strike the oil or brine horizons, at any given point between Greencastle and Terre Haute, may be readily determined with a remarkable degree of accuracy.

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*This is not shown on the colored section. The depth of the limestone at Reelsville is carried through to Terre Haute. The limestone, as we go west, appears to be displaced by sandstone and shales that are synchronous with the limestone at Reelsville.

From Reelsville, in Putnam county, the strata dip to the westward at the rate of about thirty feet to the mile of horizontal distance. This low rate of dip is not rendered perceptible unless followed to some distance, when the changes it brings about in the strata are made wonderfully manifest. The subcarboniferous limestone and millstone grit are carried below the surface; the former seven hundred and fifty-four feet below the crossing of the Terre Haute & Indianapolis and the Evansville & Crawfordsville railroads at Terre Haute, which point is four hundred and eighty-three feet above high tide of the Gulf of Mexico, and about fifty-two feet above the low water of the Wabash river.

The coal measures make their appearance along the line of this section, in Clay county, increasing rapidly in thickness as you proceed toward the Wabash river, and for some distance beyond that stream in Illinois. As the strata increase in depth, the beds of coal disappear, and are replaced by shale and other rock. Their absence being first noticed in the lower strata in Marshall county, Illinois, not more than twelve miles west of the Wabash river, where, notwithstanding a still greater development of the coal measures, by the acquisition of superior strata, we see they are, nevertheless, barren of coal beds of a workable thickness, from the upper to the lower strata.

The following diagram (No. 2) exhibits a connected section of the coalmeasures and coal beds in Clay and Greene counties, extending down to the base of the millstone grit, which contains two or more coal beds, one of which is of good workable thickness. The short time that has yet been given to the survey of the coal field in this State renders it highly probable, as I make no pretensions to infallibility, that some errors may still exist in regard to the placing of the seams of coal in this section. It is, therefore, only provisionally given at this time, in order to facilitate their study.

The space between coals B and F appears to be barren of coal seams in the counties examined, and a skip in the order of lettering has been made, with the expectation that coal-beds will be found to fill out some of the blanks, at least in other parts of the State.

Coals A and B are to be seen along the eastern border of Clay county, and in places some miles beyond, and within the limits of Putnam county; but here, so far as yet discovered, they are too thin for profitable working, especially while thicker beds can be had close by. The quality of the coal is generally good but variable, being, at some places, non-caking, or "block," and at others "caking-coal."

Where the former character prevails, these coals will answer for making iron in blast-furnaces.

On the east side of Bowling Green, and at the foot of a avine, the space between coals A and B is twelve to fifteen feet, which gradually diminishes as you ascend to its head, where they unite in one seam from one and a half to two feet thick. Coal A ranges from one and a half to three feet in thickness, but B seldom exceeds one foot. As these coal seams have already been alluded to in connection with the millstone grit, and the horizon at which they may be found being clearly set forth in the connected section, I will now proceed to speak of the more important coals, from a manufacturing point of view, to be found within the entire limits of the *great western coal field.*

These coals are marked F, I, and K, on the connected section, and may be referred to as "lower block," "main block," and "upper block-coals."

The main "block-coal," I, ranges from three feet eight inches to four feet four inches in thickness, and the lower and upper coals from one foot six inches to three feet six inches. They were first mined in the vicinity of Brazil, and are found occupying a belt that, in Clay county, is from three to ten miles in width, and in length extending from the northern limits of the coal basin, in Warren county, as far south as the present limits of my survey, in Greene county; and it is my opinion that it will be found still farther south.

"Block-coal" is a name used by miners to designate a variety of non-caking bituminous coal, which was first discovered on the western border of the Appalachian coal-field, along the Mahoning valley, in the State of Ohio, where it is also extensively used in blast-furnaces, direct from the mine. In many respects it closely resembles the Scotch "splint" coal; it is free burning, contains a small amount of white ash, is remarkably free from sulphur, has a splinty fracture, and emits a dull ringing sound when struck with the hammer. The beds of this coal are traversed by narrow vertical fissures, that are, nevertheless, quite distinct, the main system of which run a little east of north, and being crossed at right angles by others, they separate the coal strata in such a manner that the coal may be mined in large cubes or blocks, which exhibit the whole depth of the bed—hence the probable origin of the name

Diagram No. 2.

CONNECTED SECTION OF COAL MEASURES IN CLAY AND GREENE COUNTIES, INDIANA.

Spaces. Feet	Spaces. In.	Feet	In.	
43	6	23		*Drift.*
		19		*Hard-Pan.*
		1	6	Sandstone with Iron Ore.
		4		*Coal N.*
31	4	7	6	*Fire Clay.*
		1	6	*Sandstone.*
		12	9	*Shale.*
			6	Fossiliferous Iron Ore.
		7	7	*Shale.*
		1	6	Bituminous Shale.
				Coal M.
30		5	8	*Fire Clay.*
		4		*White Sandstone.*
		5		*Dark Sandstone.*

CONNECTED SECTION OF COAL MEASURES—*Continued.*

Spaces. Feet	In.	Feet	In.	
		14	6	*White Sandstone.*
			10	**Bituminous Shale.**
		7		*Coal, L.*
14	2	4		*Fire Clay.*
		4	6	*Sandstone.*
		1	6	**Bituminous Shale.**
		2	6	**Fossiliferous Limestone.**
		1	8	**Bituminous Shale.**
		1	10	*Coal K, (Upper Block).*
14	6	5		*Fire Clay.*
		9	6	*Shale.*
			7	**Coal, J.**
11		4		*Sandstone.*
		7		*Fire Clay.*
		4	4	**Coal I, Main Block.**
12	6	10	6	*Fire Clay.*
		2		**Bituminous Shale.**
		1	6	**Coal, H.**
25	2	3	9	*Fire Clay.*
		4	6	*Slate.*
		5		*Fire Clay.*

CONNECTED SECTION OF COAL MEASURES—*Continued.*

Spaces. Feet	Spaces. In.	Feet	In.	
		2	9	Shale.
		3	1	Sandstone.
		5	6	Shale.
			7	Bituminous Shale.
			[illegible]	Coal G.
		1	6	Shale.
		4		White Sandstone.
		1	4	Dark Sandstone.
		7		*Shale.*
24	6			
		2		*Sandstone. Dark*
		6	2	*White Sandstone.*
		2	6	Bituminous Shale.
		3	8	*Coal F, (Lower Block).*
		7		*Sandstone.*
		1	3	*Fire Clay.*
		5		*Gray Shale.*
		100		*Argillaceous and Siliceous Shales bored into at Harmony, Clay Co.*
263	9			

CONNECTED SECTION OF COAL MEASURES—*Continued.*

Spaces. Feet	In.		Feet	In.	
			150		*Millstone Grit, Shales and Massive Sandstone.*
			2		*Coal, B.*
20			20	4	
			3		*Coal, A.*
					Argillaceous Shales.
			3		*Heavy Deposits of Iron Ore.*
					Sub-Carboniferous Limestone.

RECAPITULATION.

FEET	IN.	
43	6	
4		Coal, **N.** (Petring).
31	4	
	6	Coal. **M.**
30		
7		Coal, . (Staunton)
14	2	
1	10	Coal, **K.** (Upper block).
14	6	
	7	Coal, **J.**
11		
4	4	Coal, **I.** (Main Block).
12	6	
1	5	Coal, **H.**
25	2	
	5	Coal, **G**
24	6	
3	8	Coal, **F.** (Lower Block).
263	3	
2		Coal, **B.**
20	4	Millstone Grit.
3		Coal, **A.**
3		
522		Total.

Aggregate Thickness of Coals---28 6-12 Feet

"block coal." The sides of the blocks are regular, and usually stained with oxide of iron, which is probably caused by the infiltration of ferruginous waters along the joints. When entries are driven across the main joints of the block-coal beds, the face of the mine presents the zigzag, notched appearance, of a Virginia worm fence.

Block-coal has a laminated structure, and splits readily into sheets, that have their surfaces covered with a dull-black, soft, fibrous, carbonaceous matter resembling charcoal; while, on the other hand, it is difficult to break in the opposite direction to the laminæ; and this fracture exhibits a splinty structure marked by alternate layers of dull and shining black coal. In coking, it scarcely swells or changes form, and never cakes or runs together. It is this latter character which gives to the "block-coal" its peculiar value as a fuel for smelting iron ores, while it has sufficient bitumen—in the form of gaseous matter—to render it highly inflammable; and the blocks retain their shape until burnt to ash, in such a manner as will admit the ready passage of the blast and flame through the entire mass of fuel, ore and flux.

On the other hand, the bituminous, caking-coals, of which the Pittsburg coal may be taken as the type, swell and run together, so that the blast cannot force the flame through the contents of the furnace, and the whole mass becomes chilled for want of sufficient heat to melt the ore.

By reference to the map of Clay county, which accompanies this report, the outcrop, and mining-shafts, and all coal-beds, are designated by a black square (■), and the equivalency of the coal-beds by letters, corresponding with those of the continuous section.

In the northern part of the county, and in the vicinity of the Terre Haute & Indianapolis railroad, numerous shafts are sunk, and a great many bores have been made for the purpose of determining the extent and limits of the main "Block" coal-bed (I). My researches go to show that that portion, at least, of the coalmeasures in which this coal is found, is much disturbed by horsebacks and other irregularities in the strata; hence the manifest necessity of making frequent bores over level tracts of land, where no outcrops are to be seen, in order to ascertain the best location for sinking a mining shaft, and to acquire the assurance that a wave in the rocks has not brought up the strata of coal to a position that left it liable to be cut away by the disintegrating forces which covered this county with debris during the glacial epoch.

The spaces between the *upper*, *middle* and *lower* "block" coal beds, (K., I. and N.,) are subject to great changes, as will be shown by the sections which are to follow, and I have reason to believe that, in some places, two of these coals are united in one bed. Then again, on going west from Brazil these spaces are seen to contain one or more intercalated seams of coal. East of the Planet furnace, on section twenty-two, town thirteen, range six west, the sandstone, which locally overlies coal I, outcrops in a small branch of Croy's creek. The coal below it is worked by a shaft at the furnace, and also by another shaft (the Star mine) one and one-quarter miles northwest of the former, on the northeast quarter of section twenty-one, in the same township and range. Both of these mines are owned and worked by the Indianapolis Rolling Mill Company, and I am indebted to Mr. E. Jones, foreman at the furnace, and to Mr. Haggert, superintendent of the mine, for much information and valuable assistance in obtaining an accurate detailed section of the shaft at the "Star Mine," which is eighty-seven feet six inches in depth; seventy feet to the bottom of the coal.

SECTION OF STRATA IN "STAR MINE."

Red clay, ...	14 feet 7 inches.
Hard pan, ...	4 ft.
White sandstone, ...	23 ft. 6 in.
Silver-gray sandstone, . . .	15 ft.
Blue argillaceous shale, . . .	1 ft.
Light-gray sandstone, with carbonaceous markings in the seams, . .	2 ft. 11 in.

Blue argillaceous shale, . . .	3 feet 3 inches.
Block coal, I, ...	4 feet 8 inches.
Soft, dark fire clay, containing roots of plants, ...	3 feet 6 inches.
Light-gray sandstone, in the bottom of shaft, ...	15 feet.
	87 feet 6 inches.

This shaft is located in a small basin, as the coal appears to rise from it in all directions. The mine is reached by a switch from the Terre Haute & Indianapolis railroad, and the coal is used for making iron at the Planet furnace, which is owned by the same company as above mentioned.

For manufacturing iron, this coal is not surpassed by any in the county, as may be seen by the following exhibit of its anaysis:

Specific gravity, 1.264; weight of a cubic foot, 79 lbs.

Coke, ...	64.00.	Ash, white, . . .	2.5.
		Fixed carbon, . .	61.5.
Volatile matter, .	36.00	Water, ...	3.5.
		Gas, ...	32.5.
	100.00.		100.0.

The structure of the coke shows but little change from that of the coal. It is not swollen and puffed out, but lamellar, dense, and without lustre. The large amount of fixed carbon, and the small quantity of ash and water which this coal contains, gives it a higher rank for heating purposes than is possessed by the caking coals brought to Indianapolis from Pittsburg. An analysis was made of a picked specimen of Pittsburg coal, obtained from one of the Indianapolis coal dealers, and is here given for the sake of comparison:

Specific gravity, 1.189; a cubic foot weighs 74 lbs.

Coke, ...	57.9.	Ash, white, . . .	1.0.
		Fixed carbon, . .	56.9.
Volatile matter, .	42.1.	Water, ...	1.0.
		Gas, ...	41.1.
	100.0.		100.0.

Coke very much swollen and puffed out; form of the coal quite changed. It contains 4.6 per cent. less carbon than the Star mine coal, but has less ash and less moisture. The latter quality adds to its value, while the loss in carbon depreciates it.

The superiority of the Star mine coal for fuel is due, mainly, to the fact of its being an open, free-burning coal, that ignites readily, and will reach the initial heating point in a much shorter space of time than the Pittsburgh coal, which property renders it of great value as a steam producing coal, and incomparable for locomotive use.

Going south from the Planet furnace, and before reaching Harmony, a village on the Terre Haute & Indianapolis railroad, the coal strata outcrop or have been removed by denudation, as a bore made at that place to the depth of one hundred feet—after passing through the drift or glacial depost—was in argillaceous shales to the bottom, and passed no coal.

At Knightsville, two miles west of Harmony, on the Terre Haute & Indianapolis railroad, the main "block" coal, I, is mined by the Western Iron Company to supply their two blast-furnaces. The following analyses were made of two specimens of coal taken from these mines, that possessed the general appearance of all the coal taken from this bed:

(a.) Specific gravity, 1.176; a cubic foot weighs 73.5 pounds.

Coke, . .	60.1	Ash, white, ...	0.3
		Fixed Carbon, . .	59.8
Volatile Matter,	39.9	Water, ...	9.0
		Gas, ...	30.9
	100.0		100.0

Form of coal but little changed in coking, and it does not cake and run together.

(b.) Specific gravity, 1.167; a cubic foot weighs 72.93 pounds.

Coke,	59.0	Ash, white,	2.0
		Fixed Carbon,	57.0
Volatile matter,	41.0	Water,	8.0
		Gas,	33.0
	100.0		100.0

Character of coke same as in the preceding.

At the Western Iron Company's Furnaces, the sandstone over the main coal is not so thick as it is at the star mine, and the shaft is only forty feet deep, and the coal averages three feet nine inches in thickness. Going to the northwest of these furnaces, the coal strata rises, so that in two hundred and seventy yards from the shaft, it may be reached at the depth of eighteen feet.

I am under obligations to Mr. William Watson, superintendent of the Western Iron Company's works at Knightsville, for the following instructive sections of bores made under his supervision on the Bahan farm, in the south-west quarter of section 21, township 13, range 6, west:

(No. 1.)—

Surface, soil and clay,	7 ft.	
Soft clay and sand,	2 ft.	
Hardpan,	13 ft.	10 in.
Hard clay and sand,	13 ft.	2 in.
Soft brown clay, with driftwood,	2 ft.	0 in.
Soapstone,	1 ft.	8 in.
Coarse gravel and sand,	ft.	4 in.
Hard clay and sand,	8 ft.	6 in.
Sandstone,	0 ft.	2 in.
Soapstone,	6 ft.	5 in.
Coal K (top seam),	0 ft.	1 in.
Fire Clay,	1 ft.	1 in.
	59 ft.	3 in.

(No. 2.)—Section of bore on same farm:

Surface and Clay,	7 ft.	6 in.
Soft clay and sand,	7 ft.	0 in.
Hardpan,	1 ft.	0 in.
Hard brown sandstone,	5 ft.	2 in.
Potters' clay, probably the under clay to coal K,	1 ft.	2 in.
Blue slate,	2 ft.	2 in.
Iron ore,	0 ft.	3 in.
Blue slate,	2 ft.	2 in.
Iron ore,	0 ft.	1 in.
Blue slate,	1 ft.	5 in.
Iron ore,	0 ft.	1 in.
Blue slate,	0 ft.	7 in.
Slate, with thin sandstone,	1 ft.	3 in.
Soapstone,	5 ft.	3 in.
Sandstone,	26 ft.	1½ in.
Slate,	0 ft.	1 in.
Coal I,	4 ft.	3 in.
Fire-clay,	0 ft.	0 in.
	65 ft.	9½ in.

The fire-clay, 43 feet 9½ inches above coal I, is probably the under clay to coal K.

(No. 3.)—Section of bore on same farm:

Surface-soil and clay,	8 ft.	6 in.
Soft clay and sand,	7 ft.	0 in.
Hardpan,	2 ft.	0 in.
Hard sandstone,	6 ft.	1½ in.
Soft, bluish sandstone,	7 ft.	6 in.
Coal K, top seam,	2 ft.	2½ in.
Rash coal,	0 ft.	6 in.
Fire-clay, good quality,	4 ft.	9 in.
Sandstone,	0 ft.	2 in.
Light-blue sandstone,	9 ft.	6½ in.
Rotten limestone (?)	3 ft.	8 in.

Blue shaly sandstone,	9 ft.	2 in.
Sandstone,	10 ft.	5½ in.
Coal I, main "Block,"	4 ft.	2 in.
Fire-clay,	0 ft.	0 in.
	72 ft.	9 in.

The space between I and K, in this bore, is 42 feet 5 inches—very nearly what it is in bore No. 2, assuming its place to be above the potters' clay.

(No. 4.)—Section of bore on the same farm, near the outcrop of coal I:

Surface soil and clay,	6 ft.	6 in.
Soft clay and sand,	8 ft.	6 in.
Brown hardpan.	6 ft.	6 in.
Bluish hardpan,	5 ft.	6 in.
Soapstone,	8 ft.	4 in.
Coal I, main "Block,"	2 ft.	6 in.
Rotten coal,	1 ft.	1 in.
Fire-clay,	6 ft.	5 in.
Sandstone,	3 ft.	3 in.
Pale blue slate,	1 ft.	9 in.
Arenaceous shale,	2 ft.	2 in.
Blue sandy shale,	12 ft.	8 in.
Coal F,	1 ft.	7½ in.
	66 ft.	9½ in.

At "Weaver's Switch," half a mile west of Knightsville, a shaft was sunk, in 1862. by Mr. John Andrews, who superintends the mines of Andrews, Butch & Dickson, and passed through the following material:

Drift,	18 ft.	0 in.
Dark-gray sandstone, lower part soft, and mixed with coal,	6 ft.	0 in.
Coal I,	0 ft.	6 in.

Fire-clay and argillaceous shale,	12 ft.	0 in.
Sandstone,	4 ft.	0 in.
Coal F,	1 ft.	8 in.
Hard arenaceous fire-clay,	4 ft.	0 in
The shaft ends here; but a bore was made which passed through strata as follows, viz:		
Very white sandstone, coarse grained, and excellent for building purposes, may answer also for making glass,	12 ft.	0 in.
Bluish, argillaceous shale,	16 ft.	0 in.
Argillaceous shale, soft, and easily bored,	65 ft.	0 in.
	143 ft.	2 in.

The coal in the "Weaver-Switch" shaft dips one foot in twelve to the east, and thirty rods in that direction, from the above described bore, Mr. Andrews put down another, which passed through the following strata, viz:

Drift,	12 ft.	0 in.
Coal I,	4 ft.	0 in.

A few yards from this he sunk a shaft to coal I, which he found at the same depth as indicated by the bore, and from the bottom of this shaft he bored sixteen feet, to coal F, passing through the same material found in the "Weaver-Switch" shaft.

As coal 1 has no substantial roof above it at this place, it could not be worked economically, and the shaft was abandoned.

At Brazil, and to the eastward and northward of that city, and along South Otter creek, coal I is mined in many places. The following list comprises the most prominent of the coal mining companies of that section: Garlick & Collins, three mines—one in south-east quarter of section

25, township 13, range 7 west, and two others in the south-east quarter of section 24, township 13, range 7.

The following is the result of an analysis of a characteristic specimen of coal from the first named mine.

Specific gravity, 1.230; a cubic foot weighs 76.87 lbs.

Coke,	60.5	Ash, lead color,	3.0
		Fixed carbon,	57.5
Volatile mater,	39.5	Water,	8.5
		Gas,	31.0
	1.000		1.000

The structure of the coal was but slightly changed in coking, and the coke was brilliant, dense and brittle; the large amount of water found in this coal, may be owing, in part, to the fact that, the specimen analyzed was fresh from the mine, and had been exposed to a rain storm the night previous.

Andrews, Butsch and Dickson, three mines; all on the east half of section 30, town 13, range 6.

Strain & Schurmann, one mine in the north-west quarter of section 31, town 13, range 6.

Jane Ernhart, one mine in the north-east quarter of section 30, town 13, range 6.

Otter Creek Coal Company, one mine in the south-west quarter of section 19, town 13, range 6.

—— Jones, one mine in the north-east quarter of section 26, town 13, range 7 west.

Dr. Mansur Wright, two mines in the north-east quarter of section 25, town 13, range 7 west.

Clay Coal Company, one mine in the north-west quarter of section 19, town 13, range 6.

Niblock Coal Company's mines in the north-west quarter of section 19, town 13, range 6.

McClelland and Son, one mine in the north-west quarter of section 17, town 13, range 6.

Indiana Coal Company's mines, in the north half of section 17, town 13, range 6.

Indianapolis Rolling Mill Company, two mines; one at the Planet Furnace, in the south-east quarter of section 22, town 13, range 6, and one in the north-east quarter of section 21, town 13, range 6.

The above list, I think, comprises all the points at which the "Block" coal is being worked north of the Terre Haute and Indianapolis Railroad. A list of the openings south of the railroad will be given in due order.

The *Upper*, *Middle* and *Lower* "Block" coal seams all out-crop between the house of Mr. John Andrews and Mrs. Jane Ernhart's mine, on a small tributary of South Otter Creek. The upper seam, K, is overlaid by a fossilferous limestone, in which I found *Productus cora*, *P. semireticulatis*, *P. Wabashensis*, *Spirifer cameratus*, *Chonetes mesiloba*, *Athyrus subtilita*, and large *encrinite* stems.

In the following section, obtained at Andrews, Butsch and Dickson's shaft, just back of Mr. Henry Ashley's residence, this limestone is eleven feet thick.

Section of strata, passed through in the shaft just named, on Mr. Ashley's land, one mile east of Brazil:

Soil and drift, ...	20 ft.	0 in.
Fossiliferous limestone, . .	11 ft.	0 in.
Blueish soapstone, . . .	6 ft.	0 in.
Coal, K, (Upper "Block,") .	1 ft.	6 in.
Gray shale, ...	16 ft.	0 in.
Thin bedded, light-colored sandstone, containing reddish bands colored with protoxide of iron,	18 ft.	0 in.
Stiff blueish, argillaceous shale, .	1 ft.	4 in.

This shale varies in thickness from 0. to eight feet.

Coal I, main "Block,"	3 ft.	10 in.
Good fire clay for pottery,	1 ft.	6 in.
Hard siliceous clay, mixed with iron balls,	6 ft.	0 in.
The shaft ends here, and from this point they bored into		
Hard blueish shale	6 ft.	0 in.
Soft sandstone, with layers of yellowish clay,	20 ft.	0 in.
Coal, F,	0 ft.	3 in.
Fire clay,	?	
Argillaceous and siliceous shale,	60 ft.	3 in.
Gray shale, with iron balls,	6 ft.	0 in.
	177 ft	8 in.

This section carries us down to the shales that were bored into at Harmony, and proves, I think, the absence of coal seams in this part of the basin between coal F, and the heavy sandstone of the millstone grit.

The section of the shaft on the railroad, in Brazil, is reported as follows:

Soil and drift,	10 ft.	0 in.
Limestone,	4 ft.	0 in.
Argillaceous shales,	28 ft.	0 in.
Coal, K,	0 ft.	10 in.
Sandstone,	28 ft.	0 in.
Shale,	2 ft.	0 in.
Coal, I, main "Block,"	3 ft.	3 in.
Fire clay,	6 ft.	0 in.
	82 ft.	1 in.

A bore was made to a considerable depth below the bottom of the shaft, finding no coal, and passing through nothing but argillaceous shale. The depth of this bore could not be ascertained exactly, but is supposed to be about one hundred feet.

In many of the shafts and bores made in this part of Clay county the limestone above coal K, and the sandstone between K and I are wanting, their places being filled by shales.

Along the Indianapolis & St. Louis railroad, and on North Otter creek, the "block" coal bed I is seen in many places where it is of as good quality for manufacturing pig iron as any found on South Otter creek, or along the Indianapolis & Terre Haute railroad; and the building of the former road will enable the proprietors of coal lands to open up and develop the mineral resources of a large area of the "block" coal field now locked up from market for the want of transportation.

The town of Carbon, recently laid off, on the Indianapolis & St. Louis railroad, is situated about the middle of the northern tier of townships in Clay county, and occupies a position in the very heart of the "block" coal belt that is most favorable for mining operations and the erection of blast-furnaces for making pig-iron. The coal mine of McClelland & Sons is reached by a switch or branch road from the Terre Haute & Indianapolis railroad, and is now one of the most northerly mines worked in the county; and in order to show the persistent good quality of the "block" coal, as you go north from Brazil, a characteristic specimen from this mine was subjected to analysis, and gave the following result:

Specific gravity, 1.279; a cubic foot weighs 79.93 lbs.

Coke,	56.2	Ash, white,	1.5.
		Fixed carbon,	54.7.
Volatile matter,	43.8.	Water,	5.0.
		Gas,	38.8.
	100.0.		100.0.

The form of the coal is but slightly changed by coking; coke lamellar and semi-lustrous. This coal is on section

17, town 13, range 6 west, about one and a half miles south of Carbon, and has been successfully used for making pig-iron, in the furnace of the Lafayette Iron Company and in the Brazil furnace.

South of the Terre Haute & Indianapolis railroad, the main "block" coal bed has been opened at the following places, viz:

Ormsley Coal Co., on sec. 12, town 12, range 7 west.
General Pierce, on sec. 18, town 12, range 6 west.
Crawford & Co., on sec. 7 and 8, town 12, range 6 west.
David N. Barnett, on sec. 10, town 12, range 6 west.
Western Iron Co., on sec. 28, town 13, range 6 west.
V. Raab, on sec. 11, town 12, range 6 west.
Lucas, on sec. 16, town 12, range 6 west.
McCullough, on sec. 15, town 12, range 6 west.
B. Payne, on sec. 14, town 12, range 6 west.
Steadman, on sec. 4, town 11, range 6 west.
Gillfillan, on sec. 10, town 11, range 6 west.
J. Moss, on sec. 9, town 11, range 6 west.
G. Moss, on sec. 16, town 11, range 6 west.
C. Moss, on sec. 9, town 11, range 6 west.
Ashboro, on sec. 17, town 11, range 6 west.
J. Fisher, on sec. 11, town 11, range 6 west.
Ely, on sec. 11, town 11, range 6 west.

SOUTH OF EEL RIVER.

Goshorn, on sec. 10, town 10, range 6 west.
Rowe, on sec. 10, town 10, range 6 west.
Cole, on sec. 10, town 10, range 6 west.
Kilmer, on sec. 21, town 10, range 6 west.
Croft, on sec. 33, town 10, range 6 west.
Leisty, on sec. 28, town 10, range 6 west.
P. Barrick, on sec. 34, town 10, range 6 west.

South of the Terre Haute & Indianapolis railroad, the main "block" coal bed averages about the same thickness as it does north of the road.

The Ormsby Coal Company were not ready to begin operations at their mine south of Brazil at the time of my visit, but they have since laid a railroad track from their mines to the main trunk at Brazil, and their mines are now in complete working order. Their coal has a good reputation, both at home and abroad—being, for the most part, shipped to Chicago, where it is used for manufacturing iron.

Coal from Barnett's mine, three and a half miles southeast of Brazil, on section ten, town twelve, range six west, is hauled in wagons to the furnaces at Knightsville and Brazil, and is considered the best coal yet used in this part of the basin for making pig-iron. At Barnett's mine the main "block" coal bed I, and the lower seam F, appear to be separated by only five inches of fire-clay and seventeen inches of rash-coal, as shown in the following section:

Drift, clay and gravel, . .	19 ft.	8 in.
Gray Shale, ...	5 ft.	0 in.
Sandstone, ...	1 ft.	5 in.
Gray slate, ...	0 ft.	7 in.
Sandstone, ...	0 ft.	2 in.
Gray slate, ...	1 ft.	4 in.
Dark sandstone, with black seams, ...	1 ft.	0 in.
Shale, ...	0 ft.	9 in.
Coal I, main "Block," . .	3 ft.	10 in.
Fire-clay, ...	0 ft.	5 in.
Rash coal, ...	1 ft.	7 in.
Coal F, lower "Block," . .	2 ft.	0 in.
Fire-clay, ...	3 ft.	0 in.
	30 ft.	9 in.

The coal at this mine is worked by a drift, or entry, driven in from the outcrop of the bed, on the north face of a low ridge.

A bore made fifty rods south of the opening to Barnett's mine, furnished the following section:

Drift, clay and gravel, . . .	11 ft.	0 in.
Hardpan, ...	10 ft.	6 in.
Gray slate, ...	4 ft.	0 in.
Arenaceous slate, with small balls of iron-stone, . . .	3 ft.	0 in.
Black Slate, ...	1 ft.	6 in.
Coal I, ...	3 ft.	6 in.
Fire-clay, ...	0 ft.	0 in.
	33 ft.	6 in.

Another bore was made a short distance from the above, and to the north-west, which passed through the same material, and found the coal four and a half feet thick.

A specimen of coal from Barnett's mine gave, on analysis, the following result: Specific gravity, 1,250; a cubic foot will weigh 78.12 pounds.

Coke, . .	58.5	Ash, white, ...	1.5
		Fixed carbon, ...	57.0
Volatile matter,	41.5	Water, ...	4.0
		Gas, ...	37.5
	100.0		100.0

Coke, dense and brilliant, and form of coal slightly changed.

This may be taken as a type of the "Block" coals to the south, at Centre Point and Ashboro, and to the south of Eel river.

"Block coal" is spread over fully one-half of the county, and we may estimate a depth of four feet of this coal on at least one hundred square miles, or sixty-four thousand acres; each acre, therefore, contains seven thousand tons, of two thousand pounds or one hundred and seventy-five thousand bushels, which, at the extremely low estimate of one cent per bushel, gives one thousand seven hundred and fifty dollars as the value of the coal on each acre, or *one hundred and twelve millions dollars* for the sixty-four thousand acres.

A short distance west from Brazil, the "Block" coal beds K and I, are brought up by a slight wave in the strata, and are cut out by the drift. At Newburg, two miles west of Brazil, the general westerly dip from the axis of the wave has again carried these coals to a considerable depth below the surface at the railroad level, and they are so much reduced in thickness as not to have been recognized in the bores made in search of them at various points between Brazil and Terre Haute.

At Newburg, Root, Price & Co. are mining coal L, from a shaft made by the side of the railroad track. This shaft passes through coal M, which is too thin to mine, and reaches coal L at the depth of forty feet. The latter coal is six to eight feet thick, and has one, and sometimes two fire-clay partings; here there is but one parting, about forty-three inches from the top. This is a bituminous, caking coal, and will not answer for the manufacture of pig-iron unless coked. The upper six inches of the bed is quite sulphurous, and should be rejected in mining. The remainder of the bed is a shining, black, cube coal, often displaying the much-admired peacock colors.

Coals M and L outcrop at a number of places in the vicinity of Newburg, and L. is opened and mined by Mr. Armstrong on the north-east quarter of section 10, town 12, range 7; Mr. Keneda, south-east quarter section 3, town 12, range 7; Mr. Fortner, north-west quarter section 10, town 12, range 7; Mr. Williams, south-west quarter section 10, town 12, range 7.

At Staunton, on the Terre Haute and Indianapolis railroad, four miles west of Brazil, coal L is reached by shafts, thirty-six to forty feet deep; both on the north side of the railroad, and in the town. Bailey and Company's shaft is thirty-eight feet deep, and passes through the following strata:

Clay and gravel,	9 feet.
Hardpan,	10 “
Sandstone,	12 “
Coal L,	7 “
	38 feet.

A characteristic specimen of coal, from the above-named mine was analyzed, and gave the following result:

Specific gravity, 1,327; a cubic foot will weigh 83 lbs.

Coke,	53.3	Ash, light gray,	6.0
		Fixed Carbon,	47.3
Volatile matter,	46.7	Water,	7.0
		Gas,	39.7
	100.0		100.0

In the water-sump below the coal, there is from eight to twelve inches of rash-coal, underlaid by four to five feet of fire-clay. Coal M. was not found in this shaft, and was probably removed by the drift. Coal L. ranges from six to eight feet in thickness, and has here, as at Newburg, a thin parting of fire-clay, three to three and a half feet from the top. In quality the coal is the same.

At Mr. Somers' shaft, one-half mile east of Bailey & Co.s' mine, coal M. lies about fifteen feet above coal L; the former is eighteen inches, and the latter seven feet five inches in thickness, has a clay parting, and is of the same quality as that seen at Bailey's and elsewhere. On the south side of Staunton, coal M lies very close to coal L, where they outcrop in the side of a ravine, and are exposed in the cut of the creek branch. Coal M is overlaid by a black shale that may be readily split into great sheets like roofing slate, but, unlike the latter, is rich in bitumen, and crumbles to pieces on being exposed to the action of the atmosphere. This shale is highly fossiliferous, and contains spines and teeth of fish, and a variety of marine shells. Of the latter I recognised *Orthoceras rushensis*, *Nautilus decoratus*, *Productus wabashensis*, *Chonetes mesoloba*, *Athyris subtilita*, *Spirifer cameratus*, *Cardenia fragilis*, *Arca carbonaria*, *Aviculopecten rectilateraria*, very abundant, *Myalina pernæformis*, *Pleurotomaria Grayvillensis*, and *Bellerophon carbonarius*.

At some of the outcrops of this shale, south of Staunton, I saw mixed through it large concretionary boulders of dark limestone. On the land of Mr. Modisett, one mile south-west of Staunton, section 17, town 12, range 7 west, coal L has two clay partings, and is eight feet thick. The partings are about one inch thick, and coal M, 18 inches thick, is seen a few feet above it.

At Harding's mine, a few hundred yards south of Staunton, coal L. is mined from an entry which penetrates the ridge on which it outcrops.

John Andrews, an intelligent and experienced mining-boss, who lives at Brazil, put down a bore, some years ago, about a quarter af a mile north-west of Bailey's shaft, and went ninety-six feet below the mammoth bed L, and passed through the following strata:

Coal L, ...	7 ft. 0 in.
Fire-clay, ...	3 ft. 0 in.
Commencement of bore—	
Shale, with iron balls, . . .	20 ft. 0 in.
Coal K, upper "Block,"	1 ft. 8 in.
Soft sandstone, ...	20 ft. 0 in.
Shale I, here a caking-coal, . .	4 ft. 0 in.
Coal, ...	2 ft. 6 in.
Shale, ...	46 ft. 0 in.
Coal F?	2 ft. 6 in.
	96 ft. 8 in.

At Cloverland, two miles west of Staunton, we find the same succession of coals outcroping in the ravine on the south of the railroad, where the following section was obtained, starting at the top of the hill at Mr. Alfred West's:

Surface-soil and drift,		27 ft. 0 in.
White sandstone,		11 ft. 0 in.
Shale,		20 ft. 0 in.
Hard, blue limestone, which breaks with conchoidal fracture,		2 ft. 0 in.
Shale,		0 ft. 6 in.
Coal M,		1 ft. 2 in.
Fire-clay,		3 ft. 0 in.
Bluish shale, with iron-stone,		2 ft. 0 in.
Coal,	2 ft. 0 in.	Coal L, 7 ft. 6 in.
Fire-clay,	0 ft. 1 in.	
Coal,	2 ft. 0 in.	
Fire-clay, with thin band of coal,	0 ft. 5 in.	
Coal,	3 ft. 0 in.	
Fire-clay, with iron-stone,		4 ft. 0 in.
Black shale, with fish remains,		4 ft. 0 in.
Coal K, caking-coal,		1 ft. 10 in.
Low water, head branch of Lost creek,		0 ft. 0 in.
		84 ft. 0 in.

The following persons own mines at Cloverland, that are now being worked by stripping off the surface earth:

Alfred West, Miss Kate Brittain, and Mr. Wright.

Coal L, here averages seven feet in thickness, and when properly and carefully selected from the pyritiferous bands, which are more or less common in this bed, it is a very good article of bituminous, caking-coal; excellent as a fuel for household and steam purposes.

Going west, the dip carries the Cloverland coal below the drainage surface; and coal N, which lies about sixty feet above it, outcrops in a ravine on the south side of the railroad, about one mile west of that place, where there is an abandoned coal mine.

At Seelyville, in Vigo county, the Indianapolis Rolling Mill Company is working coal L, from a shaft that is one hundred feet down to the bottom of the coal; and a few hundred yards west is Perring's mine, where they are working coal N, from a shaft that is forty-three feet to the bottom of the coal, which is here four feet thick, and has a thin slate parting about one foot from the top. This coal contains fewer sulphur bands, and is a very good bituminous caking-coal.

Though the general dip of the strata, at this place, is to the west, this coal outcrops in the hills about two and a-half miles east of Terre Haute, and is not seen again from thence to the latter place, or to the State line and beyond, at least not of sufficient thickness to justify working. The first coal bed reached in the artesian well at Terre Haute is undoubtedly L; likewise the coal which is mined by shafts thirty to sixty feet deep, one and a-half miles a little north of west from Terre Haute, and the coal at St. Mary's, in the woods, one hundred feet below the road-bed of the Terre Haute & Alton railroad. The synchronism of these coals, as designated above, from Newburg, on the Terre Haute & Indianapolis railroad, to St. Mary's, five miles northwest of Terre Haute, is, in my opinion, well established by the numerous shafts and bores made between the two points, the uniform character of the coal, and its characteristic accompaniments.

The line of eastern outcrop of coal L runs from Newburg with a northerly curve, passing through Roseville and Rosedale, to Clinton Lock, in Parke county: thence northward in Parke county, curving to the east, and passing five or six miles west of Rockville, it crosses the Wabash river a few miles south of the mouth of Sugar creek, and continues to the west of Newport, in Vermillion county, Indiana, where the continuity of the line is broken by a wave in the strata—the strike, or bearing, of which is northwest and southeast, and breaks the connection of the outcrop line with the equivalent coal bed on Coal creek, in Wabash township, Fountain county. In Vermillion county the outcrop of this coal may be traced along the Little and Big Vermillion rivers, and it is the equivalent of the seven-foot seam of coal mined by Col. Chandler, at Danville, Illinois.

To the south of Newburg, in Clay county, the eastern outcrop of coal L bears in a southeasterly direction to Middleberry—but, through this portion of the county, it has been but little developed, for want of facilities for getting the coal to market. At Middleberry, Mr. J. Cooprider has opened a mine on the outcrop of coal L, where it is seven feet thick, with two clay partings, as at Cloverland. Though outcrops of this coal are to be seen at various points around Middleberry, very little effort has been made to work it. About half a mile southeast of Mr. J. Cooprider's, coal K has been worked by stripping. It is from four to five feet thick, and has a black sheety slate roof containing fish remains. Above the shale is an earthy, cream-colored limestone, that will make a handsome building stone, and has been used in this neighborhood for walling wells and building chimneys.

From Middleberry south, coals K, L, and N, where the measures are thick enough to contain them, are of good workable thickness, and may be traced through the western part of Greene county to the limits of the present survey on the south.

GLACIAL OR DRIFT EPOCH.

The material comprising this geological epoch, consists of irregularly arranged beds of sand, gravel, tough bluish clay with gravel, the so-called hardpan, and yellowish and more or less plastic clay, with gravel and small boulders; the latter are principally of metamorphic origin, but occasionally we find one from the sedimentary rocks, and a few have been found containing fossil shells of Silurian and Devonian date. Trunks and branches of co-existing trees are sometimes met with in sinking wells to the lower stratum of sand and gravel. The total thickness of the drift, in Clay county is from 0 to 40 feet, and in some instances even more.

The impervious clay called hardpan, constitutes the horizon of the fresh water supply for household purposes, and is usually reached by wells at a depth of fifteen to twenty-five feet. The temperature of the water from this stratum is from 60° to 65° Fahr., being cool, healthful and pleasant to the taste; it contains small quantities of mineral salts, namely: bicarbonate of lime, bicarbonate of magnesia, a trace of protoxide of iron, chloride of sodium (common salt) and sulphates. This is termed a *hard water*, because it cannot be used for washing clothes. The acids of the salts contained in the water unite with the alkali of the soap, causing decomposition by setting free the grease, and thus destroying its detergent properties.

Many persons hold the opinion that the habitual use of hard water for slaking thirst is injurious to health, and recommend in its stead the use of rain-water. This, in my opinion, is in most cases a mere fancy, as the very mineral salts which are supposed to be injurious, are, unless found in such quantities as will give to it medicinal properties, beneficial to the living body, and supply it with some essential constituents. On the other hand, rain-water, as collected from the roofs of houses, is more or less contaminated with ammonia and poisonous gases absorbed from the atmosphere, soluble matter from the smoke and soot thrown out from the chimneys, and the microscopic organic matter washed from the roofs, much of which is of questionable benefit to the human system.

Small pieces of native copper, fragments of lead ore, and some other minerals, have been found at various places in the drift of Clay county, but they are of rare occurrence, being far removed from their native beds, which lie to the northward.

ECONOMICAL GEOLOGY.

The entire coal area of Clay county comprises about three hundred square miles, or 192,000 acres; and the total depth of coal over this area, including all the seams from N, at the top of the measures, to A, at the base of the millstone grit, is twenty-eight feet nine inches; but as some of

the seams comprising this grand total are not thick enough to mine over the entire area, a reasonable deduction is made on this account; also, for loss from outcrops, horsebacks, waste, etc., etc., and the available depth of "Block" and caking coals is placed at the low average of six feet. This depth of coal strata will give, as the product of one acre, 10,500 tons, or 294,000 bushels of coal, which, if estimated at $2.50 per ton, the present market value of coal delivered on the railroad cars in Clay county, will make the sum of $23,250 as the value of the average product of an acre of coal land.

If estimated at this rate for the entire area of 192,000 acres, we have four thousand four hundred and sixty-four millions ($4,464,000,000) of dollars as the probable value of the coal of this county alone.

For want of suitable transportation and a ready market, only a small portion of the three hundred square miles of coal-lands can be made available for mining purposes for many years to come; therefore, the commercial importance of the coal is not so readily realized, and the above figures may at first appear startling to those who have not fully contemplated the subject. Let us, therefore, make an estimate from another point of view. The area of the iron-smelting, or "Block" coal in Clay county, which is included in the above estimate, cannot be less than one hundred square miles, or sixty-four thousand acres, under which the coal may be averaged at four feet in thickness, being much less than the combined thickness of the five beds, A, B, F, I, and K, and we have seven thousand tons as the product of one acre, worth, at $2.50 per ton, (the market price on the cars in Clay county,) $17,500 per acre. At this rate of calculation, the 64,000 acres will give one thousand one hundred and twenty millions ($1,120,000,000) dollars as the present value of the available "Block" coal of Clay county.

The price per ton at which the "Block" coal is herein estimated, cannot be looked upon as above its value, when we take into consideration its convenience to market and superior quality as a fuel for smelting iron. Each succeeding year its value must be enhanced, and mine owners had better let it remain in the ground than dispose of it at a less price. In fact this coal should be used only for making iron, notwithstanding that, for heating purposes, and for generating steam, it stands unrivaled in the West, even by the famous Youghiogheny coal of Pennsylvania; and for the use of locomotives it has no superior. As a blast-furnace coal to smelt iron ores, it has been amply tested in the five furnaces that are now using it in Clay county, and leaves nothing to be desired. The pig-iron made at the Clay county blast furnaces, from Iron Mountain and Lake Superior iron-ores, by the use of block-coal as a fuel, commands from two to three dollars more per ton, at the furnace, than the same grade of pig-iron made in Kentucky and Ohio will command in Indianapolis.

With regard to the exact cost of making a ton of pig-iron at any particular locality, very little reliance can be placed on the various published statements that have been collected from blast-furnace managers. We have no right to expect from iron-masters an exhibit of the exact cost of producing iron, or the profits arising from their business; but it may in reason be said, that with a superior article of coal, and her proximity to the ore, Indiana affords highly favorable facilities for manufacturing pig-iron, and will soon take her position in the front rank as an iron-producing State.

Coal and iron, next to agriculture, forms the basis of a country's wealth. England, to-day, owes her greatness as a nation more to the coal-fields that lie within her borders than to any other cause. Without cheap fuel what would become of her vast workshops, that have made her mistress of the markets of the world? All civilized nations fear her competition, and a tariff only can protect our infant manufactories from her blighting competition.

But England is now in the zenith of her manufacturing strength; her warehouses are filled with goods, and all the markets of the world are glutted with the products of her skill and enterprise. Still, with her vastly superior natural resources, America can look ahead to the time when the failing coal-fields of England will mark the decline in her manufactures, and place the former in the ascendency.

The six to eight foot bed of bituminous caking-coal L, that is mined at the various railroad stations west of Brazil, is, if freed by careful selection from the bands of iron-pirites with which it is more or less contaminated, an excellent coal for fuel and for generating steam, and will make, in properly arranged coking-ovens, a hard, metalic-looking coke that will answer for smelting iron. As yet, the value of this mammoth bed of coal is hardly realized.

The following is an exhibit of the quantity and value of "Block" and bituminous caking-coals mined daily in Clay county:

"Block" coal, shipped daily from Clay county, 410 tons. Value, at $2 50 per ton,	$1,025 00
"Block" coal used daily in blast-furnaces in Clay county, 300 tons, at $2 50 per ton,	750 00
"Block" coal mined daily in Clay county, 710 tons, at $2 50 per ton, ...	1,775 00
Bituminous caking-coal mined daily in Clay county, 60 tons, at $2 00 per ton, .	120 00
Total coal mined daily in Clay county, 770 tons. Total value, ...	$1,895 00
Approximate yield of coal for one year, 230,000 tons. Value, ...	$366,000 00

BLAST FURNACES.

There are five blast-furnaces in Clay county, that are making pig-iron with raw *block-coal*. They all run upon the hot-blast principle, and the blast is heated in gas-ovens by the waste gas brought from the top of the stack. The total working capital employed at these furnaces is about six hundred thousand dollars. Combined, they consume daily:

300 tons of "Block" coal.
150 tons of Lake Superior and Iron Mountain ore.
50 tons of limestone for flux.

The daily make of iron is about 110 tons, worth, on an average, at the furnaces, forty dollars per ton; this includes all grades. The total value of each days' run of iron is, therefore, four thousand four hundred dollars, or about one and a half millions dollars per annum, after allowing a large margin for mishaps and loss from accidents. The number of men employed at these furnaces, not including coal-miners, is about two hundred.

All the furnace companies own collieries, and give employment to a great many more men who are engaged in mining "block" coal for the furnaces, and also for market, but the accounts for each branch of business are kept separate.

The view which forms the frontispiece to this Report is taken from a photograph of the magnificent blast-furnace at Brazil, now run by Messrs. Garlick & Collins.*

The Brazil furnace was built in 1867, and "blowed-in" on the 8th of December of that year, and is one of the largest and best conducted blast-furnaces in the West. At my request, Messrs. Garlick & Collins very obligingly furnished me with statistics in regard to this furnace, which it is thought may prove of general interest to the public. It is what is termed a cupola furnace, and is formed by joining at their base two truncated cones of solid brick work, the upper cone being supported on iron columns. Both are formed internally of good refractory fire-brick, and have a shell of boiler-iron one-quarter of an inch thick.

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*It was my intention to have published views of all the blast-furnaces of this county, but the promised photographs were not received from the other proprietors.

Height of furnace, - - - - - -	60 feet.
Diameter across the boshes, - - - -	14 "
Diameter of hearth, - - - -	5 "
Diameter of trunnel-head, - - - -	6 "

The engine and blowing cylinder are upright. The former is eight hundred horse power. The steam cylinder is six feet long, and thirty-three inches in diameter. The blowing cylinder is six feet in diameter, and has a six foot stroke. Ranged on each side of the engine-house, and used alternately, there is a nest of four boilers, thirty-six feet long and forty inches in diameter. The arrangement for heating the blast consists of two large gas ovens, that are divided into two sections, each of which contains eighteen pipes, making, in all, seventy-two "Pollock" pipes. The blast is heated from 750° to 900° Fahr., and is driven into the furnace under a pressure of three to four pounds to the square inch, through seven tuyers, with nozzles three and a half inches in diameter. The cast-house and engine-house are constructed of brick, and have iron roofs. When completed, the coal-shed, or stock-house, will hold enough coal to run the furnace about four months. The ore, fuel and flux are hoisted to the tunnel-head or throat of the furnace by a water balance.

Cost of construction, - - - -	$150,000.00.
Amount of capital employed, including cost of furnace, railroad, real estate, working capital, etc., etc., - - - -	250,000.00.

Daily consumption of fuel, (*block coal,*) -	70 tons.
Daily consumption of ore, - - - -	45 "
Daily consumption of limestone, - -	16 "
Daily yield of pig-iron, - - - -	28 "

Number of persons employed, including miners of furnace coal and coal for market, - - 150.

Red hematite and magnetic oxide of iron, from Lake Superior and Missouri, are the ores used at this furnace, the native ore being more expensive in proportion to the quantity of iron it contains than the ore from either of the former localities.

For the week ending Septembar 18th, 1869, the average daily run of the Brazil furnace was 62.046 pounds of pig-iron per diem. The highest yield was 73,610 pounds, and the lowest, 47,628 pounds. Total make for the week, 434,322 pounds, or 191½ tons (of 2,268 fbs to the ton, the selling weight of pig-iron,) of the highest grade of No. 1 foundry iron. Samples of this iron were obtained from the furnace, and are now to be seen in the State collection, at the office of the State Geologist in Indianapolis.

The average quantity of "block" coal used per ton of iron, during the stated period, was 4,042 pounds, only a little more than two short tons.

Owing to the great interest manifested in the manufacture of iron in this State, it is thought that a brief account of the mode of starting, or "blowing-in," as it is called by furnace men, a blast-furnace, may not prove uninteresting to the general reader.

If the furnace is a new one, it is first dried gradually by kindling a fire upon the hearth. After being thoroughly dried, it is filled well up into the boshes with good seasoned cord-wood. Upon the wood is thrown about ten tons of coke, the quantity being regulated by the size of the furnace. Above the coke the furnace is filled with evenly distributed charges of "block" coal, limestone, and a small burden of ore—say about four hundred and fifty pounds of ore, one thousand eight hundred pounds of "block" coal, mixed with coke, and occasionally some sticks of wood, and one hundred and eighty pounds of limestone. The wood is added to prevent the contents from "hanging," or sticking to the sides of the furnace. After the furnace has been filled in this manner, to the top, the wood at the bottom is ignited. The fire ascends very slowly to the top, and the contents of the furnace gradually settle down as the wood at the bottom is being consumed. After the contents have settled down to the space that was occupied by the wood, and the surface has reached a bright glow, the charging is resumed, and the furnace kept supplied with a full burden of ore and other material requisite to make No. 1 foundry iron. Only a portion of the blast is turned on for a day or two, after which it is blown with full force.

The usual charge for making No. 1 foundry iron, at the Brazil blast-furnace, consists of: 1545 pounds of a mixture of Iron Mountain specular iron ore, Lake Superior red oxide and magnetic iron ore, scrap and mill cinder, 425 to 475 pounds of limestone, (obtained from Hamrick Station or Greencastle Junction,) 1800 pounds of "block" coal, (obtained from the mines of the company and Barnett's mine).

The ore yields about 68 per cent., and the furnace is ordinarily tapped three times in twenty-four hours.

No. 1 *foundry iron* is made when the furnace is worked with the above charge at its maximum heat.

B. 1 *and No.* 2 *foundry iron* is made from the same charge when, by some little irregularity, the heat is decreased in the furnace.

To make mill iron, the quantity of ore in the charge is increased, leaving the burden of coal and flux the same as before.

Pig-iron made from Lake Superior and Missouri specular and magnetic iron-ores, is always *red-short;* that is, the metal, made into bars, is easily broken when hot, but it is very strong when cold; *cold-short* iron possesses the opposite properties, and is made from silicious carbonates and the hydrated brown oxides. The dye-stone ores of Tennessee yield a cold-short iron. Silica, phosphorous, manganese, and titanic acid, when present in sufficient quantities in ore, will produce the cold-short properties in the obtained metal.

Neutral-iron is made in the furnace, by mixing in proper quantities, the *cold-short* and *red-short* ores, and is the most valuable metal for general purposes.

The general character of the iron made in Clay county is *red-short*, but a *neutral* iron may be made by using the proper mixture of ores.

No 1 foundry iron, made in Clay county, is of a gray color, very soft, and highly crystalline; it possesses a high character for foundry purposes, on account of its uniform rate of shrinkage, and the large amount of scrap it will carry, say fifty to sixty per cent., which is from two to three times as much as can be used with either the Hanging Rock or Kentucky iron of the same grade.

B, 1, *gray foundry iron*, is not so soft as No. 1, but makes a stronger casting; scrap cannot be used with it.

N. 2, *bluish-gray foundry*, is both a harder and stronger metal than either of the others, but like the latter will not admit of being mixed with scrap.

No 1, *mill-iron*, bluish-gray, fine-grained pig, used for making bar-iron, nails, etc.

No. 2, *mill-iron*, inclined to be mottled, is also used for making bar-iron and nails.

White iron is made from the same stock as the latter, but results from a higher heat in the furnace; this is the best iron for making nails, cast-iron bells and railroad frogs. It is a very hard metal, and wears better than the other grades.

Red-short iron loses more carbon, and will shrink more in castings than cold-short iron, and in the mill the muck-bars will crack on the edges in rolling, whilst bars made from neutral iron will be smooth and perfect on the edges.

The market demand for red-short pig is rapidly increasing, owing to its superior strength when cold, and the various uses to which it is applicable. By mixing it in the puddling-furnace with proper proportions of cold short pig, a neutral iron can be made.

Lafayette Blast Furnace, owned by the Lafayette Iron Co., is situated on a branch of South Otter Creek, one and a half miles north of Brazil, on the south-west quarter of section 19, town 13, range 6 west; this is also a very excellent furnace, built on the most approved plan, and is very similar to the Brazil furnace, except in regard to size, being smaller; it is quite new, having "blowed-in," for the first time, on the 20th of May, 1869.

The following statistics of the operation of this furnace, were, at my request, very obligingly furnished by Mr. B. F. Masten, one of the proprietors:

First cost of furnace when completed, not including lands, houses and railroad,	$70,000 00
Capital stock,	80,000 00
Daily consumption of fuel, "Block" coal, from the company's mines,	45 tons.
Daily consumption of iron ore,	37½ "
" " " limestone,	10 "
" yield of pig-iron,	18 "
Number of hands employed at the furnace,	30.
Height of furnace,	45 feet.
Diameter of boshes,	10½ "
" " hearth,	4 "
" at tunnel-head,	5 "
Temperature of blast,	600° Fahr.

The side of the ridge which forms the divide between South Otter creek and the furnace branch, is cut down to a vertical face, in order to locate the furnace in such a position that the tunnel-head is on a level with the table-land above. By this excellent arrangement the throat of the furnace is brought on a level with the railroad switch and coal-shaft which is near by, and the filling of the furnace is accomplished, direct from the fuel and ore-sheds, without the use of the ordinary hoisting arrangement. At the time of my visit to this furnace, it was in most excellent running order, and making, under its able management, No. 1, or best quality foundry iron. The ore used is from Missouri and Lake Superior, and the fuel was obtained from the Otter Creek Coal Co.'s shaft, only a few rods from the furnace; in fact, the excavation that was made for the foundation of the furnace cut through the coal bed.

The Western Iron Co. owns two furnaces, located at Knightsville, two and a half miles east of Brazil, on the H. & I. railroad, in the south-east quarter of section 29, town 13, range 6 west. Both of these furnaces are run with one engine, by which arrangement a considerable saving is made, not only in machinery but in the outlay for hands. They are under the able management of Mr. William Watson, an experienced superintendent from Canada, and have been highly successful in making good iron. One of these furnaces went into blast in the fall of 1867, and the other in December, 1868. I have been informed that the furnace last constructed cost about seventy thousand dollars*, and paid for itself in seven months' time; and during the first twelve months' running it made a ton of pig-iron for every hour of the time. The stacks are each fifty feet high, twelve feet across the boshes, six feet across the hearth, and four and a half feet in diameter at the tunnel-head.

The ore used is from Lake Superior and Missouri, and the fuel is "block" coal, obtained from the company's mines near at hand.

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*No information was received from the superintendent on this point.

The average daily run of pig-iron is forty-five tons of 2240 pounds to the ton. The pig-ron is sold at 2268 pounds to the ton.

Daily consumption of ore, - - -	60 tons.
Daily consumption of "block" coal, - -	100 "
Daily consumption of limestone, - -	24 "

The limestone is obtained from Hamrick's Station and Greencastle Junction, on the T. H. & I. railroad.

The Western Iron Company, also, have in connection with their blast-furnaces a mill for making muck-bars. The running of this mill is governed somewhat by the relative market value of the pig-ron and the muck-bars. At the time of my visit this mill was not in operation.

Planet Furnace, owned by the Indianapolis Rolling Mill Company, is situated one mile northeast of Harmony, on a switch of the Terre Haute & Indianapolis railroad, and on the southeast quarter of section twenty-two, town thirteen, range six west. Its construction is similar to the furnaces already described, but is the smallest of the number.

Height of stack, - - - - - -	40 ? feet.
Diameter across the boshes, - - -	10½ "
Diameter across the hearth, - - -	4 "

The top is closed by a cup-and-cone arrangement, and the gas is taken off through pipes, and conveyed to the oven for heating the blast. This furnace was built in the summer of 1867, and went into blast in November of that year.

Daily consumption of ore, about - -	25 tons.
Daily consumption of "block" coal, about	40 "
Daily consumption of limestone, about -	10 "
Daily yield of pig-iron, - - - -	15 "

The coal is obtained from the company's mines—one situated at the furnace, the other one mile to the northwest. The latter is known as the "Star Mine."

Most of the iron made at the Planet furnace is worked up into rails at the Indianapolis rolling-mill, which is owned by the same company.

Fire-Clay.—This clay is found at the bottom of every coal-bed, and also in places where there is no coal; but it is not everywhere sufficiently refractory to admit of its being used in manufacturing fire-brick. The fire-clay in Clay county, which underlies the main "block"-coal bed I, though not as refractory as the celebrated Mt. Savage fire-clay, will, nevertheless, resist a high degree of heat, and brick made from it are quite good enough for the lining of all parts of blast-furnaces, except the boshes, where the greatest heat is encountered, and where none but the most highly refractory brick can withstand it.

Dr. Mansur Wright has established works for manufacturing fire-brick and terra-cotta work from this clay, on South Otter creek, on the southwest quarter of section 24, town 13, range 7 west, one and a half miles north of Brazil. The clay is mined on the land, in connection with the "block" coal which supplies the necessary fuel for running the machinery and burning the brick and terra-cotta ware. The color of the clay is light-gray. It contains specks of white mica, and is quite hard when first mined, but crumbles and falls to pieces after being exposed to the weather for a few days. Before being ground and tempered for the moulds, the clay is piled in heaps and roasted, in the same manner that iron-ore is roasted. This roasting of the clay destroys the organic matter and noxious gas, which would otherwise cause the clay to shrink and crack, and thereby spoil the manufactured articles, when subjected to the heat of the kiln.

The bricks are moulded by hand, five thousand being the daily average of one hand, and subsequently pressed in a Carnell hand-press, and stamped "*Brazil.*" From forty-five to fifty-five thousand brick are made daily, and meet with a ready market in the various parts of the country to which they are shipped.

Potters' Clay.—This county is abundantly supplied with a variety of fire-clay, that is admirably adapted for manufacturing pottery, such as common stoneware, terra-cotta ornaments, and even a better class of ware known as Rockingham or Troy ware.

Three potteries have been established in Clay county, for making stoneware; one at Brazil, owned by Torbet & Baker; another, one mile north-east of Brazil, owned by Isaac Cordray; and the third at Harmony, owned by S. H. Brown. These potteries obtain their clay from the stratum under the upper seam of "Block" coal, K, and on the south-east quarter of section 17, town 13, range 6, on the property of the Clay Coal Co., and close to Mr. Morris' house. This locality is said to furnish the best article of clay in the county for terra cotta ornaments, statues, pottery, etc., etc. It is the principal clay used by the Terra Cotta Co. of Chicago, for making statues. At the time of my visit, wagons were loading with this clay for Marshall county, Illinois. It is sold at the mine for one dollar and sixty-five cents per ton, and delivered on the cars at three dollars and fifty cents per ton. The stratum is two and a half feet thick, and is mined in connection with the coal, which is twelve to eighteen inches thick.

The commercial importance of this branch of manufacture, yet in its infancy, may be seen from the following exhibit of the amount of ware made at the three establishments now at work:

Torbet & Baker, . .	80,000	gallons per annum.
Isaac Cordray, .	50,000	" " "
S. H. Brown, . . .	70,000	" " "
	200,000	" " "

The stoneware made at these potteries presents a fine appearance, is very strong, of a bluish-gray color, quite smooth and free from cracks in the glazing; it meets with a ready market, and is sold at eight cents per gallon delivered on the cars, producing to the county an annual revenue of about sixteen thousand dollars.

Salt Brine.—I am not aware that any brine springs have been found as yet in this county, but it is made quite manifest, by the bores at Reelsville, in Putnam county, at Lodi, in Fountain county, and at Terre Haute in Vigo county, that a brine can be had by boring to the depth of one thousand to fifteen hundred feet below the level of the railroad, quite as strong as the brine at Kanawha.

I have been informed by Mr. N. Thomas, of Silver Island, in Fountain county, Indiana, who formerly lived on the Kanawha river, and is a practical salt-maker, that he was present in Terre Haute when a brine was struck in the artesian well at that place, at the depth of thirteen hundred feet; and, at the request of Mr. Rose, he made a test of this brine, and found its strength to be 13° of Baume's saltometer, which is equal to fifty (50) pounds of solid saline matter in forty-seven and six-tenths gallons brine. It might, therefore, be safely estimated that fifty gallons of this brine will yield one bushel, (fifty pounds,) of good salt.

When coal is abundant and cheap, as in this county, it is needless to add that such a brine is of great value for the manufacture of salt, to supply a large and increasing market, and for the manufacture of soda-ash, caustic soda, bicarbonate of soda, etc.

The amount of salt made annually in the United States, is estimated at about eighteen millions of bushels, and the consumption is about thirty-four millions of bushels—or nearly double the quantity produced. So there can be no danger of an over-production of salt from home manufactures, for some years to come.

A good brine in Clay county can be made doubly profitable in connection with the iron pyrites and pyritiferous shales found in the upper part of the mammoth coal-bed L, by manufacturing, through the means of a chemical interchange of their elementary constituents, in addition to common salt, bicarbonate of soda and soda.

Building-Stone.—The sandstone which overlies the main "Block" coal I, is, in places, an excellent building-stone, and is extensively used in Brazil for making foundations, lintels, steps, and other parts of buildings.

The principal quarry of this rock now opened, is owned by Mr. Simonson, on section 7, town 12, range 6, one and a half miles south of Brazil. It is a bluish-white, hard, micaceous, coarse-grained, durable sandstone, and presents a handsome appearance in buildings. On Dr. Wright's property, and at quite a number of localities on South Otter creek, there are fine exposures of this sandstone, but as yet very little attention has been paid to opening quarries for market.

The limestone that overlies the upper seam of "Block" coal K, was quarried on Mr. Henry Ashley's place, about a half mile south-west of Brazil, many years ago, for building the abutments to bridges and culverts on the national road; It ranges from two to ten feet in thickness, and may be found at a number of places on the Ashley land, on Garlick & Collins' land north of Brazil, and on the property of Mr. Grimes, in the neighborhood of the village of Ashboro. It cracks and falls to pieces after some years' exposure to the action of the weather, and cannot be considered a durable building stone.

The subcarboniferous limestone exposed on Jordan creek, near Bowling Green, may, when opened up, furnish good stone for building purposes, and will serve to make a good article of quicklime.

Iron-Ore.—The shales at the base of the millstone grit contain, everywhere, more or less clay iron-stone, and siliceous hydrated brown oxide of iron, but as yet no locality is known in Clay county where it is in sufficient quantity to supply a blast-furnace; however, if suitable transportation could be had, it might be used advantageously at the present furnaces, to mix with the Lake Superior and Missouri ores.

At Mr. Thomas Cromwell's, on section 3, town 10, range 6 west, there is a deposit of excellent bog iron-ore. The exact extent of this ore can only be determined by instituting borings at a number of places, as it lies buried, for the most part, beneath the superimposed soil along the margin of a level, wet prairie. Mr. Cromwell informed me that he had dug into the ore to the depth of four to five feet, at several places on his land, without reaching the bottom, and that he has traced it for more than a mile in an east and west direction, on the south side of Eel river. The width of the deposit is about sixty feet at Mr. Cromwell's.

Mineral Waters.—At Mr. James Ferguson's house, on on the south-west quarter of section 21, town 11, range 6, there is a good cool spring of chalybeate water. The iron is both in the state of a bicarbonate and sulphate of protoxide of iron, along with a small quantity of saline sulphates, carbonates of lime, magnesia, and chloride of sodium; its properties are slightly diuretic, aperient, and alterative. There is another spring of chalybeate water, which apparently possesses similar properties to the Ferguson spring, at Mr. Kincaid's, on northeart quarter of section 21, town 11, range 5.

In boring for coal, on section 25, town 13, range 7, at the depth of thirty feet the bore struck a horseback, and got a flowing well of good, cool drinking water, with no more mineral matter than is found in the water of the neighboring wells.

Agriculture.—In an agricultural point of view, Clay county cannot be said to stand in the front rank. The upland soil is principally derived from the *drift*, and is a cold, wet, clay soil, varying in color from ash-gray to yellowish-red. The tenacity with which it holds water renders underdraining indispensible to good culture. A top-dressing of lime, wood-ash, or even coal-ash, would prove highly beneficial to this character of soil. The soil in the bottom, along the streams, is, for the most part, a clay loam with subsoil of clay. In the small prairies there are two kinds of soil, one a dark blackish muck, and the other a black sandy loam; the former is wet and unproductive, unless drained by ditches and exposed by deep plowing, for a considerable length of time, to the decomposing action of the atmosphere. A heavy dressing of lime would prove very beneficial to this soil. The sandy-loam soil of the prairies is decidedly the best in the county, and is well adapted to the growth of the serials, clover and grasses; orchards, also, do well on this land.

The upland, where attention has been paid to dressing and cultivation, and especially in favored localities, produces good crops of wheat, clover and grass, and here and there might be seen fine orchards, with a variety of choice fruits, such as apples, peaches, pears, cherries and plums.

Timber.—On the upland, the principal growth of timber is white, red, and black oaks, smooth shellbark and mocker-nut hickory, some ash, sugar-tree and beach; on the bottoms, water, white and burr oaks, gray ash, shellbark hickory, redbud, sassafras, dogwood and pawpaw; along the streams, sycamore and cottonwood, and on the higher banks large black-walnuts, three to five feet in diameter, and large burr-oaks. There are at least five sawmills on Eel river, in this county, cutting walnut lumber.

GREENE COUNTY.

This county is bounded on the north by Clay and Owen counties; on the east by Monroe and Lawrence counties; on the south by Martin, Daviess and Knox counties, and on the west by Sullivan county. In shape, it is a parallelogram, and contains five hundred and forty square miles.

The principal stream of water is the west fork of White river, which runs in a southeasterly course through the county, and divides it into two, nearly equal, parts. The main tributaries of White river, in this county, are Eel river, Latta's creek, and Black creek, on the west side; and Richland creek, Doan's creek, and First creek on the east side. Indian creek, with its tributaries, waters a portion of the eastern border of the county, and empties into the east fork of White river.

This county, east of White river, is quite broken, with hills from one hundred and twenty feet to three hundred feet in height; whereas, to the west of the river, with the exception of a ridge running from Eel river, on the north, to White river, on the south, near Fairplay, and passing a short distance to the west of Worthington, the county is generally level, or slightly undulating—a considerable part of it being prairie.

Latta's creek marsh, Bee-hunters' marsh, and Goose-pond contain, in all, about nine or ten square miles of land, subject to overflow during freshets. These marshes can be drained, and thus, by aeration, furnish to agriculture a large body of very fertile land.

Previous to the completion of the Indianapolis & Vincennes railroad, (first run in the autumn of 1869,) this county was without a direct and practicable means of communication with the distant centers of trade; consequently, up to that time there was no incentive or inducement offered to its citizens to attempt any development of its mineral resources. For this reason, the geologist has, as yet, but little to guide him in his investigations, beyond the obscure natural outcrops of the strata, and a few imperfect openings of coal and iron mines—the former of which are only occasionally worked to supply the limited and uncertain wants of the immediate neighborhoods. It is not, therefore, to be expected that I can, at this time, have as much to say, in detail, regarding its vast mineral resources as of Clay county, where so much progress has been made in the work of development.

The geological formations represented by the succession of strata in this county are:

Subcarboniferous limestone period.
Millstone grit epoch.
Coal measures epoch.
Glacial epoch.

The continuous vertical section of the coal and subordinate limestone formation, given on page 37, in the report of Clay county, is alike applicable to Greene county, in so far as it relates to the sequence of the strata; and the coal beds and other strata found here will be referred to it accordingly.

Subcarboniferous Limestone.—At the mouth of Fish creek, in the northern part of the county, limestone belonging to the Chester group of the subcarboniferous limestone formation, outcrops in the bluff bank of the creek, and is exposed to the depth of fifteen to twenty feet, and is at this place overlaid by drift, but at a short distance to the southwest it is increased by the addition of two to five feet of shale, with an irregular bedded, thin seam of coal A and the millstone grit. Some of the layers of this limestone contain a few fossils, but they are difficult to obtain sufficiently perfect for cabinet specimens. The following comprise all that could be recognized: *Orthis umbraculum*, *Archimedes Wortheni*, *Athyris subtilita*, *Pentramites obesus*, *P. pyriformis*, *Spirifer incrassatus*, *Productus carbonarious*, *P. cora*, and an abundance of *encrinite* stems. It belongs to the upper mem ber of the subcarboniferous limestone, and is designated by Prof. A. H. Worthen, in the Geological Report of Illinois, as the Chester group.

The greatest development of this limestone, seen in Greene county, is on Beech creek, a branch of Richland creek, on section 12, town 7, range 4, where it forms a great mural precipice, capped with a massive sandstone of the millstone grit series. The following section was obtained at this locality:

Brownish-gray sandstone, in thick beds, which has the appearance of being most excellent building stone, -	25 feet 0 inches.
Shale, which thickens up to many feet, and in some places contains coal A,	1 in.
Buff-colored limestone, in which I saw *Pentramites obesus*, *P. pyriformis*, and *Archimedes Wortheni*, - -	20 ft.
Gray siliceous shales, partly covered,	25 ft. ?
Blueish limestone, (in which I saw no fossils,) with intercalations of sandstone, mostly covered by talus, -	50 ? ft.
Total, - - - - -	120 ft. 1 in.

At the junction of the sandstone and limestone, at this locality, there gushes forth a mammoth spring of good cool water, which was, at one time, utilized to run an overshot wheel that propelled the machinery of a grist mill.

The subcarboniferous limestone makes its appearance at the base of the hills along this creek, for a distance of several miles, and is overlaid by a few feet of shale and the massive sandstone at the base of the millstone grit. It also makes its appearance at the ore banks on Ore branch of Richland creek, in section 28, town 7, range 4, and on the eastern border of the county, near the "Virginia" blast-furnace, (now abandoned,) and south from the furnace along Indian creek.

Millstone Grit.—This epoch follows the subcarboniferous in regular sequence, and is principally represented by a massive sandstone, usually in two benches, and separated from each other by a bed of shale, varying from a few inches to four feet, or more, in thickness, and at some places carries a thin coal B. This massive sandstone is, apparently, in the position occupied by the conglomerate sandstone most usually found at the base of the coal measures, yet in this part of the State it is, so far as I have been able to discover, entirely free from the admixture of quartz pebbles which gives rise to the latter name.

The millstone grit covers fully three-fourths of the county. Its boundary on the west may be approximately laid down as passing from Johnstown, on Eel river, across the county in a southwesterly direction to Marco, on the Indianapolis & Vincennes railroad, while the irregular margin of its eastern outcrop is in Monroe county, some miles east of the Greene county line.

Between this massive sandstone and the subcarboniferous limestone there is interposed a bed of argillaceous shale, varying from a few inches to thirty feet, or more, in thickness, that contains, in many places, a bed of good "block" coal A. (*See vertical section of the coals, page* 37.)

Above the sandstone are argillaceous and siliceous shales, with benches of flags and other stones of good dimensions for building purposes. In all, this group may attain a depth of three hundred feet, or more, in Greene county.

The massive sandstone, or conglomerate as it may be called for convenience, gives to the scenery of this county, on the east side of White river, a marked character. Near the tops of many of the ridges that skirt along the streams it forms conspicuous benches, and the slopes below are strewn with cyclopean blocks that have broken off and fallen from the parent mass above. In places it has a portion of the lower part worn away by the combined action of the frosts and running water, so as to form deep caverns with projecting roofs of stone, that afford an excellent protection in time of storms to wayfaring men and farm stock, for which reason, I suppose, they have received the common name of "rock houses." In the more secluded parts of the county the "rock houses" constitute the abode of a variety of wild animals, that seek in them a friendly shelter from the inclemency of the weather.

It is at the junction of the conglomerate with the subcarboniferous limestone that we find the great repository of limonite iron ore in this county; and, in fact, it forms the common horizon of this variety of iron ore in most of the Western States. The ore lies in pockets of various dimensions, and owes its orgin, in most cases, to a metamorphism of the surrounding rocks, produced by the permeating of mineral water that is strongly charged with protoxide of iron.

On Ore-branch of Plummer's creek, section 22, town 7, range 4 west, on Mr. Heaton's land, the base of the conglomerate has been completely changed by this process into a siliceous ore that is rich in iron to the depth of ten or twelve feet. Similar ore was seen on sections 21 and 28 of the same township and range; also, in the greatest abundance at Mr. Law's place, on sections 4 and 9, town 7, range 6, where it cannot be less than twenty-five to thirty feet in thickness, and great blocks lie scattered over the side of the ridge; it is in abundance, also, on section 12 of the same township and range, and in the neighborhood of Owensboro in the south-east part of the county.

The old Virginia blast-furnace, on Indian creek, in the western edge of Monroe county, has been out of blast for many years, but when in blast the ore was obtained close at hand from large deposits, fifteen to twenty feet thick, covering several acres.

The Virginia blast-furnace cannot be more than five or six feet across the boshes, and twenty to twenty-five feet high. It is poorly constructed, and the only wonder is that it made any iron at all. However, fragments of pig-iron that were picked up around the stack, give evidence that it made a very fair quality of iron, and was abandoned only in consequence of the great expense incurred in getting the metal to market—the nearest being Louisville, on the Ohio river, to which point the pig-iron was hauled in wagons. A characteristic specimen of ore, from the ore-banks half a mile north-east of this furnace, was analyzed, and the following result obtained:

Specific gravity, 2.56.

Loss by ignition, water and organic matter,	10.00
Insoluble silicates, - - - -	31.50
Sesquioxide of iron, with some protoxide, and a little alumina and manganese,	58.50
Total, - - - -	100.00

Giving 40.95 per cent. of metallic iron.

This ore will give over 45 per cent. of iron after being roasted, and will make an excellent quality of cold-short pig-iron.

The principal ore used at the Richland blast-furnace, near Bloomfield, in Greene county, from Ore-branch of Plummer's creek, forms a bench on each side of a ravine, and appears to lie between the massive ore and the sub-carboniferous limestone, which shows itself in the bottom near by. An excavation was made during my stay in the county, to show the thickness of this ore-bed, which went to the depth of six feet, at which point the work was stopped, without reaching the bottom of the deposit.

Capt. M. H. Schryer, of Bloomfield, who frequently saw this bed of ore at the time it was being worked for the blast-furnace, assures me that the deposit is fully nine feet in thickness. It lies in kidney-shaped masses in a matrix of ferruginous clay, and contains less silica than the massive ore. Characteristic samples of this "kidney-ore," and of the massive siliceous "block-ore," from the Richland furnace ore-banks, were analyzed, and the following result was obtained:

"Kidney-ore" (limonite), specific gravity 2.583.

Loss by ignition, water and organic matter mostly water,	11.50
Insoluble silicates,	17.00
Sesquioxide of iron, with some protoxide, and a trace of manganese,	56.00
Alumina,	2.00
Carbonate of lime,	10.00
Magnesia,	3.50
	100.00

Giving 39.20 per cent. of iron.

This ore contains a large amount of lime, and will make an excellent quality of metal; and when roasted the percentage of metal will be increased to 45.42 per cent. Specimens of pig-iron made from this ore were found at the furnace, and have every appearance of being the best quality of mill-iron.

An analysis of the siliceous "block-ore," gave the following result:

Specific gravity, 2.585—2.694.

Loss by ignition, water,	7.50
Insoluble silicates,	34.00
Sesquioxide of iron,	54.73
Alumina,	2.50
Manganese,	1.14
Lime,	.12
Magnesia,	.03
	100.02

Giving 38.31 per cent. of iron.

It was tested for sulphur and phosphorus, but found no trace.

200 grains of this siliceous ore, mixed with 50 grains of limestone, were fused in a Hessian crucible, and a button

of iron was obtained that weighed 76 grains—equal to 38 per cent.; very nearly the same result as obtained by the humid analysis. The button indicated a very good quality of iron, slightly malleable, and gave a semi-crystalline fracture. The roasted ore would yield fully 40 per cent. of iron in the blast-furnace; and on account of the manganese which it contains it is admirably adapted for the manufacture of steel, either by the Bessemer process or in the puddling furnace. Iron made from the above ores alone will possess cold-short properties, but by mixing them, in the proper proportion, with the red-short specular and magnetic ores from Missouri and Lake Superior, a neutral iron may be made.

No one of whom I inquired could inform me definitely when the Richland furnace went into blast, but it is thought about the year 1841, and the final blowing-out was in 1858 or 1859. The *stack* was about forty-five feet high and nine feet across the boshes; it was worked with a hot-blast, and used charcoal as a fuel. About nine tons of pig-iron were produced daily. The cause assigned for the stoppage of the furnace was the want of a suitable and economical means of getting the pig-iron to market.

The furnace-stack had been taken down some years previous to my visit, and the stone of which it was constructed used to build a bridge over Richland creek, though the engine, boilers, and blowing-cylinders were still on the ground and in good condition; the blowing-cylinders are forty-two inches in diameter, and six feet stroke.

Good deposits of siliceous and earthy carbonates of iron are seen at quite a number of localities in this county that are not enumerated above, namely, at Gaskils, on the I & V. railroad, on section 36, town 8, range 6; on Black creek, in the south-west part of the county; at Phillips' coal-mine, and immediately around the old blast-furnace.

All the coal-beds on the east side of White river, and over a considerable strip of country on the west side of that river, are either in the conglomerate or are sub-conglomerate. For the most part, these coals are of the "splint" or "block" variety, and though generally in thin seams, are nevertheless of good workable thickness at some localities, and will answer, in the raw state, for smelting iron.

Coal A, of the vertical section on page 37, is seen at a number of places north-east of Worthington, where it is cut through in the grade of the I. & V. railroad, and lies in close proximity to the subcarboniferous limestone; indeed it is often separated from the latter by only a few inches of fire-clay. Coal B lies from sixteen to thirty feet above coal A, being intercalated between two benches of the conglomerate, and is from four to eighteen inches thich.

At Gaskil's, on section 12, town 8, range 5, coal A lies thirty to forty feet above the railroad track, and has been partially opened, but proved too thin for mining to advantage. At Woodrow's old mill, on section 14, town 8, range 5, coal A outcrops in the bank of White river, and is twenty-eight inches thick; it is a "block" coal, but apparently contains a considerable portion of sulphur.

Immediately above the coal, and forming its roof, is black, bituminous, fissile slate, two feet; then a few feet of siliceous shale, which latter is succeeded by forty to fifty feet of massive sandstone.

About two hundred yards north of this old mill, up a short ravine, this sandstone forms a great cliff, and coal A outcrops at its base, only about ten feet above the subcarboniferous limestone, which shows itself at the foot of the ravine. Coal B, about eighteen inches thick, outcrops in Point Commerce, on the west side of the hill, at Mr. Miller's mill on Eel river, and in the sandstone bluff on the west bank of that stream, near its mouth. In excavating the foundation for his mill, Mr. Miller found beneath the bed of the river several layers of good clay iron-stone. Though rich in metal, it is barely possible that it can be found in sufficient quantity, under such unfavorable conditions for mining, to make it of value at this point.

Two and a half miles northwest of Worthington, on Mr. Joel Adams' farm, on the west half of section 7, town 8, range 4, coal A, three feet thick, is mined in the ravine by stripping off the two or three feet of super-imposed earth. The quality of the coal is good "block." On the hill close by may be seen the conglomerate sandstone, which usually lies above this coal. In digging a well at his dwelling house, on the top of the low ridge to the south of this mine, Mr. Adams passed through:

Soil and drift, - - - - - - -	13 feet.
Coal B, - - - - - - - -	1 "
Sandstone, in which water was found, and the work discontinued, - - - - -	10 "

Had the well been sunk through the sandstone, he would have reached coal A, which is only twenty or thirty feet below coal B, and is seen again at an outcrop on the south side of the property.

On Mr. Schryer's land, in the southeast corner of the same section, the Adams seam of coal also makes its appearance, and it may be traced to Johnstown mills, on Eel river, where it is struck in the wells, and as far south as Marco, on the Indianapolis & Vincennes railroad.

At Mr. McKissick's, on section 36, town 8, range 6, coal A is three feet thick, and has shale above it. The following result was obtained from an analysis of a characteristic specimen from the above bed:

Specific gravity, 1.189; a cubic foot weighs 74.37 lbs.

Coke, - -	64.5.	Ash, white, -	2.0.
		Fixed carbon, -	62.5.
Volatile matter, -	35.5.	Water, - -	3.5.
		Gas, - - -	32.0.
	100.0.		100.0.

Twenty to twenty-five feet higher than the coal bed above referred to, there is another opening to a seam of coal that has the same depth of bed, with a roof of sandstone, four to five feet thick, immediately under the drift which covers the slope of the hill above. The quality of the coal at both these openings is that of a good "block" coal. Notwithstanding the upper coal is in the position of coal B, with regard to relative space, still I feel quite sure that the two openings are in one and the same bed. But the nature of the locality, and the want of proper developments, prevented me from arriving at a positive conclusion. The sandstone above the upper opening has all the appearance of the conglomerate, and the openings being on opposite sides of the ravine, gives ample room for misplacement by a slide or horseback, the traces of which may be covered by debris.

McKissick's mine is one and a half miles north of the Indianapolis and Vincennes railroad, and may be easily reached by a switch from the main road, running the whole distance over a level prairie.

Under the coal at the lower opening there is considerable iron-stone of good quality for making iron. It is here found stratified with the shale.

South of McKissick's, the subconglomerate coals have not been worked on the west side of White river, its presence being known, only, by reaching it in wells at the following places:

Mr. Dixon's, on section 13, town 7, range 6.
Mr. Shelket's, on section 15, town 7, range 6.
Mr. Allison's, on section 14, town 7, range 6.
Mr. Lundy's, on section 21, town 7, range 6.
Mr. Wakefield's, on section 21, town 7, range 6.
Dr. Bennifield's, on section 25, town 6, range 7.
And at Halsted's, just south of the Greene county line, on Black creek, in Knox county.

On the east side of White river, the subconglomerate coal A is generally from thirty to thirty-six inches thick, and is also, in this part of the county, a "block" coal, similar in character to what is found above the conglomerate in

Clay county, and may be used in its raw state for making pig-iron in blast-furnaces.

The following mines have been opened and partially worked, to supply a very limited home demand, in the neighborhood of Bloomfield, between Richland creek and Ore-branch creek:

Templeton's mine, on section 20, town 7, range 4.
D. Heaton's mine, on section 2, town 7, range 4.
W. J. Heaton's mine, on section 28, town 7, range 4.
Cushman's mine, on section 28, town 7, range 4.
Holtzclaw's mine, on section 28, town 7, range 4.
Burcham's mine, on section 32, town 7, range 4.
Channey's mine, on section 32, town 7, range 4.
Ackerman's mine, on section 25, town 7, range 5.

At all the above openings the coal is of good quality, is overlaid by the conglomerate, and in places it is not more than twenty feet above the subcarboniferous limestone. In the immediate roof shales of the coal, impressions of the flattened stems and trunks of *sigillaria* and *calamites* are abundant, but the shale is of too fissile a character to admit of their preservation as cabinet specimens. Neither shells nor fish remains were observed.

Coal A underlies a broad district of country, which stretches out to the south-west from Bloomfield. At T. Hays' mine, on section 16, town 6, range 4, the character of the subconglomerate coal is quite changed, being at this mine a caking coal with two clay partings. The following section was made of the coal in this mine by Mr. R. H. Warder, of Spencer, Owen county, Indiana, who accompanied me on my trip through Greene county, and to whom I feel under many obligations for valuable assistance.

The entrance to the mine was partly filled with water at the time of our visit, but Mr. Warder waded through it, and measured the coal at the far end of the entry.

SECTION AT HAYS' COAL MINE.

Slope, covered space to top of hill,		30 ft. 0 in.
Coarse-grained, buff-colored sandstone,		8 ft. 0 in.
Black slate, - - - - - -		0 ft. 0½ in.
Coal, - - -	1 ft. 10 in.	5 ft. 7 in.
Clay parting, -	0 ft. 10 in.	
Coal, - - -	1 ft. 11 in.	
Fire-clay, - -	0 ft. 6 in.	
Coal, - - -	0 ft. 6 in.	
Total, - - - - -		43 ft. 7½ in.

The total thickness of this bed, including the clay partings, is five feet seven inches; reduced to clear coal, leaves three feet eight inches. This is a fine bed of coal, and is found over a large area of country, which forms the "divide" between the waters of Doan's creek and Plummer's creek. Going south to Phillips' mine, on section 21, town 6, range 4, the same bed of coal seen at Hays' mine is *semi-block* coal, three to seven feet thick, including a five-inch clay parting. Above the coal there is eight inches of a good quality of siliceous limonite iron-ore, containing stems of coal-plants, *sigillaria* and *calamites*. A fine specimen of the *Calamites cannæformis*, obtained from this locality, was presented to me by Capt. M. R. Shryer, of Bloomfield.

The following section will show the position of the coal, which is opened in a shallow ravine near the top of, the table land. The bed is worked by stripping off the superincumbent strata of rock:

Soil and drift, - - - - -		10 ft. 0 in.
Siliceous iron-ore, - - -		0 ft. 8 in.
Sandstone, - - - - - -		1 ft. 0 in.
Blue shale, - - - - -		1 ft. 0 in.
Coal, semi-block,	2 ft. 4 in.	3 ft. 8 in.
Clay parting, -	0 ft. 5 in.	
Coal, - - -	0 ft. 11 in.	
Fire-clay, - - - - - -		0 ft. 0 in.
		16 ft. 4 in.

The same stratum of coal is also mined by W. B. King, on the line between sections 28 and 29, town 6, range 4, where it presents the same characteristics seen at the Phillips' mine.

My first impression on visiting these mines was, that the place of this bed of coal was above the conglomerate, and in the coal-measures proper; but seeing that my friend, Leo Lesquereux, in his report on the coals of Greene county, published in Prof. Richard Owen's Geological Report of Indiana, has referred to it as being subconglomerate, it is therefore thought best to make no change with regard to its position in advance of a more thorough examination.

In the neighborhood of Owensboro, and to the southwest, in Martin county, the subconglomerate coal A has been opened and mined for blacksmiths' use, at quite a number of places; it ranges from thirty to thirty-three inches in thickness, and is, at some openings, good "*block*" coal, while at others it is a bituminous caking-coal.

Owensboro is on the western limit of the subconglomerate coal, the place of the latter being, possibly, represented by an outcrop of excellent fire-clay for potteries, lying near the top of the hill on the west side of the town. Below the fire-clay there are large deposits of iron-ore, similar to that used at the Old Virginia blast-furnace in Monroe county.

A well dug by Mr. John Potter in the eastern part of the town, on a branch of Indian creek, passed through:

Gray argo-siliceous shales, - - - -	15 ft.
Sandstone, - - - - - - -	3 ft.
Blue argo-shale, - - - - -	4 ft.
	22 ft.

The water in this well is, no doubt, obtained from the upper part of the subcarboniferous limestone, which makes its appearance a short distance farther up the branch.

Coal A, at Babbit's mine, is opened on the half-section line, between sections 28 and 33, town 6, range 3, one and a quarter miles south-west of Owensboro; the bed is two feet thick, and the coal is mined out in fine large cubes from twelve to fifteen inches thick. It is a caking coal, of a beautiful jet-black color, with numerous small cracks lined with scales of *selenite* not thicker than a sheet of paper. This is a remarkably pure coal, and would answer well for making gas and coke. The analysis gave the following result:

Specific gravity, 1.238. A cubic foot will weigh 77.3 lbs.

Coke, -	61.4	Ash, gray, - -	1.5
		Fixed carbon, - -	59.9
Volatile mat'r,	38.6	Water, - - -	3.0
		Gas, good illuminating,	35.6
	100.0		100.0

The coke swells but little; structure of the coal but slightly changed; color dull.

Immediately above the coal, and forming its roof, there are three feet of black bituminous shale, overlaid by five or six feet of conglomerate sandstone, which is again succeeded by a few feet of drift. This same bed of coal is opened at Mr. Baker's, on the south-west quarter of section 20, town 6, range 3, and also at Mr. Amos Dawson's, on the west half of section 23, town 6, range 3. The opening to the coal at the latter locality was filled with water, so that I had no opportunity to personally inspect the depth of the strata, which is reported to be four and a half feet. From samples of coal found at the mouth of the opening, it is here a good quality of "block-coal." The succession of strata are as follows:

Drift, - - - - - - -	30 ft. 0 in.
Sandstone, - - - - - -	3 ft. 0 in.
Shale, - - - - - - -	6 ft. 0 in.
Coal A, ("block,") said to be, - -	4 ft. 6 in.
	43 ft. 6 in.

Another opening is made to this coal on Mr. Foote's land, on the south-west quarter of section 36, town 6, range 4, and the quality is said to be the same as at Babbit's.

Going south into Martin county, coal A is also seen at Mr. Davis', where it has the character of a good "block-coal." The bed is twenty-seven inches thick, and is worked in the bank of a ravine by stripping off the superimposed strata, composed as follows: Of

Soil, - - - - - - -	2 ft. 0 in.
Sandstone, - - - - - -	1 ft. 0 in
Bluish argo-shales, - - - -	10 ft. 0 in.
Coal A ("block-coal"), - - -	2 ft. 3 in.
Fire-clay, - - - - - -	?
	15 ft. 3 in.

Mr. Rollings has opened a mine in the same coal-bed, one and a half miles south of Davis'; the coal is two feet thick, and similar in character to Babbit's coal. It is overlaid, where mined by stripping, with four or five feet of tough, bluish argo-shale, containing an abundance of well preserved coal plants, principally, *Sphenophyllum Schlotheimii*, *Pecopteris Arborescens*, *Neuropteris Loschii*, *N. hirsuta*, *Asterophyllites Sublevis*, and stems of *Calamites cannæformis*. A short distance back from this mine, the shale is overlaid by the conglomerate sandstone, which shows in benches along the tops of the ridges.

Half a mile south of Rollings' mine, is Todd's mine, said to be the same seam and character of coal as the former.

Passing now to the west side of Greene county, we ascend above the conglomerate or millstone grit epoch, to the place of the coal strata proper.

Coal-measures.—The three townships, 6, 7, and 8, of range 7, in the western part of Greene county, are, except where cut out by the flats of Goose-pond, Black creek, Latta's creek, and the bottoms of small streams, underlaid by the mammoth coal-bed, L, which is mined on the Terre Haute and Indianapolis railroad at Newburg, Staunton, Cloverland station, and at the Lost creek mines at Seelyville.

On the north-west quarter of section 18, town 6, range 7, Mr. W. P. O'Haver has opened, in a ravine, a mine to coal L; the bed is here from four and a half to five feet thick, has from one to two feet of black sheety slate in the roof, and no other material above except a foot or two of soil; but on the rise, at Mr. O'Haver's house, in digging his well he passed through thirty feet of siliceous shale without getting down to the coal. At his grist-mill, half a mile to the west, in the edge of Sullivan county, the well which supplies water to the boilers passed through the bed of coal worked at the mine, and is reported as being seven feet thick. In this measurement the two feet of black shale forming the roof must have been mistaken for coal. Judging from specimens of coal found around the mouth of the pit at O'Haver's mine, it is a good article of bituminous caking-coal.

The entry to the mine was not in a fit condition to admit of the coal being seen in place.

Two miles north of O'Haver's, at Mr. Bedwell's, also in the edge of Sullivan county, there had been openings made to a bed of coal that is said to be seven feet thick. On visiting this locality I felt disappointed to find that the walls of the old shaft had caved in and covered up the seam; some fragments of coal, however, found lying at the mouth of the pit, indicate its character to be a caking-coal; and from the topography of the country lying between this locality and O'Haver's, I am led to believe that the two coals belong to equivalent beds. At Mr. Purcell's, on section 24, town 6, range 7, a coal was struck in his well, that is also, in all probability, referable to the same bed.

In the neighborhood of Linton, coal K has been mined at a number of places; it is from four and a half to five feet thick, and is an excellent quality of caking-coal.

On the map or Greene county accompanying this report, the place which the coal-beds at Linton occupy in the connected section of the coals, given on page 37, is designated by the letter "K?" The accompanying mark of interrogation implies that the coal has been so referred with doubt; indeed the old openings were all filled with debris, and very little opportunity was afforded, in this part of the county, for the examination of the coals in position.

The specimens found at these mines, and left with me since the suspension of mining operations last fall, bear testimony that it is a very firm and good quality of bituminous caking-coal. At two of the openings the coal is occasionally mined for market—one on section 26, town 7, range 7, owner's name unknown; the other is at Barney McClurg's on land owned by Mr. Sharp, on section 23, town 7, range 7. This stratum of coal is said to be from four to five feet thick, and has been struck in wells at Armstrong's mill, one quarter of a mile east of Linton, on section 23, town 7, range 7, and at the residence of Dr. Humphreys, on section 22, same town and range. The country immediately around Linton is quite level, and no rocks are to be seen; but on going northward a few miles the country becomes broken, and in road-cuts along the hill-sides we find, exposed to view, siliceous shales and flag-stones in the upper part, while in the deeper parts, at the base, there lies from two to ten feet of fossiliferous limestone, underlaid by the black bituminous sheety slate, containing teeth and other fish remains, which generally forms the roof of coal K, and occasionally the coal itself is seen.

At Mr. Jonas Hanna's, on section 32, town 8, range 7, coal K outcrops in a ravine, and may be traced along the branch that cuts through it for a considerable distance. It is here divided into three beds by two partings of fire-clay, and the total depth is five and a half feet.

Mr. Hanna dug a well at his house, on the top of the ridge, which passed through this coal at the depth of sixteen feet, and found no roof above it but the drift.

The principal fossils seen in the limestone which usually accompanies this coal, are referable to the following genera and species: *Productus wabashensis*, *P. cora*, *P. semireticulatus*, *Spirifer cameratus*, *Chonetes mesoloba*, *Athyris subtilita*, *Bellerophon carbonaria*, *Nucula inflata*, and large stems of *encrinites*.

Coal K outcrops in a branch at the foot of the hill at Mr. Bledsoe's, and thirty-two feet above it, this gentleman is mining coal L, by an entry driven into the hill, a specimen of which was analyzed, giving the following result:

Specific gravity, 1.251; a cubic foot weighs 78.2 lbs.

Coke,	63.5	Ash, fawn-color,	0.5
		Fixed carbon,	63.0
Volatile matter,	36.5	Water,	7.0
		Gas,	29.5
	100.0		100.0

The structure of the coal changes but slightly in coking, is somewhat swollen, and of a dingy, lustreless color.

At Mr. Smith's, one-quarter of a mile west of Bledsoe's, on the same section of land, the Perring bed, or coal N, outcrops, and is also worked by an entry.

The following approximate section will serve to show the relative position of these three beds of excellent bituminous caking-coal:

Soil and drift,	18 ft.
Argillaceous shale,	2 ft.

Coal N, - - - - - - - - -	4 ft.
Potters' clay, white, - - - - -	2 ft.
Siliceous shale, with flags, - - -	40 ft.
Coal L, equivalent of Staunton coal, -	5–6 ft.
Dark fire-clay, - - - - - -	?
Blue argillaceous shale, - - -	4 ft.
Bluish-gray sandstone, - - - - -	24 ft.
Fossiliferous limestone, - - - -	2 ft-
Black bituminous slate, with fish remains,	2 ft.
Coal K, - - - - - - -	4–5 ft.
	109 ft.

Here, in the space of about 109 feet, we find three beds of fossil fuel that have an aggregate thickness of from thirteen to fourteen feet.

The sulphur-bands which are of common occurrence in coal L, are, at Mr. Bledsoe's, readily separated from the main part of the bed, which is one of the very best bituminous caking-coals in this part of the county.

This coal is, as a fuel, above the average, and is sought after by blacksmiths, far and near, for forging iron and welding steel.

Gamble's coal, on section 29, town 8, range 7, is the same as the lower coal K, at Bledsoe's.

In the northern part of Wright township, coal K outcrops at the following places, where it is from four and a half to five feet thick, with one or two clay partings, and overlaid by a black shale and fossiliferous limestone;

McBride's,	on section	17, town	8, range	7.
White's,	"	8, "	8, "	7.
Letsinger's,	"	8, "	8, "	7.
Jasonville,	"	4 or 5, "	8, "	7.
Lahr's,	"	22, "	8, "	7.

Going east it has been struck in wells at a number of places, and underlies all the high land in that direction as far as the line dividing ranges 6 and 7.

The outcrop of coal I—the main "block-coal" bed of Clay county—should be found in the townships in range 6.

GLACIAL, OR DRIFT EPOCH.

The superstrata of clay, gravel, sand, and small boulders of metamorphic rocks which cover the entire county, except where removed by denudation, belongs to this geological formation.

Various metals and ores, foreign to the stratafied rocks of this county, are frequently found in this formation, but usually in such small quantities as to be of no practical value; indeed this "float" mineral of the drift serves too frequently to mislead the uninitiated, who lose both their time and money in the vain search after the parent bed or vein, which lies far to the north of the State.

The stratum of clay commonly known as "hardpan," is generally reached at the depth of fifteen or twenty feet, and forms the horizon from which the supply of well-water is obtained throughout the county.

ECONOMICAL GEOLOGY.

The total depth of all the coal strata in Greene county is fully equal to that of Clay county, which is twenty-eight feet and nine inches, and the area which is underlaid by coal may safely be estimated at three hundred and sixty square miles, or two hundred and thirty thousand four hundred acres. Over this district, after making full allowance for outcrops, horsebacks, loss from mining, etc., etc., there exists fully six feet of coal available for market.

As the mines in this county are only worked to a very limited extent to supply blacksmiths' forges and a few families who find it more convenient and economical than wood as a fuel, there is no data, at present, by which to fix its commercial value. If, therefore, we estimate the product of one acre which, at six feet in depth, will yield—calculating one ton per cubic yard—two hundred and ninety-four thousand bushels, which, at the usual price paid as royalty, one-half cent. per bushel, gives *one thousand four hundred and seventy dollars* as the value of one acre; and calculated at the same rate for the entire area of two hundred and thirty thousand four hundred acres, gives *three hundred and thirty-eight milllons six hundred and eighty-eight thousand dollars* as the approximate royalty value of the coal in Greene county.

"*Block*" *Coal.*—The area of the "block" coal in Greene county, which is included in the above estimate, is about *one hundred and fifty square miles*, and its average depth may be taken at two and a half feet. In quality it is fully equal to the average run of "block" coal in Clay county, and can be used in the raw state for the manufacture of pig-iron.

Iron Ore.—Greene county is rich in deposits of siliceous hydrated brown oxide of iron and clay iron-stone. Many of these deposits of ore are from ten to twenty feet, or more, in depth, and will furnish a full supply of ore for a large number of blast-furnaces for many years to come. The only thing required to insure the immediate erection of blast-furnaces at these ore-banks, is a railway that will furnish means of transporting its manufactured products to market. Good "block-coal" suitable for fuel, and limestone for flux, are to be found in close proximity to the ore; and there is no quality of metal so much needed at this time, in Indiana, as the cold-short iron which the ores of this county will furnish in great perfection.

Building-Stone.—Excellent quarries of sandstone and limestone are now being opened and worked on Mr. Watson's land, on the line of the Indianapolis & Vincennes railroad, on section 6, town 8, range 4, and on section 14, town 8, range 5.

At the time of my examination, about six feet of rock was exposed at the latter quarry, still leaving a considerable depth of good stone undeveloped. It is a fine-grained, brownish-gray sandstone, with small specks of protoxide of iron, and lies in strata that range from six to sixteen inches in thickness, and may be taken up in slabs of any required length and breadth.

Sandstone quarries have also been opened by Mr. Hamlin, on section 25, town 7, range 4, and at Mrs. Faucett's, on Plummer's creek, on section 4, town 6, range 4.

The stone at the latter quarry is moderately fine-grained, has a cream color, can readily be split to any required thickness, and is mined in large slabs from six to thirty inches thick. Stone from Hamlin's quarry is used in Bloomfield for foundations to buildings, door-steps, door and window lintels and sills, chimneys, copings, etc., etc. In quality and in color it is similar to the stone at Mrs. Faucett's quarry.

Good sandstone for building purposes is also found on Mr. Lahr's land, and at various other localities in Wright township, in the north-western part of the county. In fact there is no scarcity of good building-stone in Greene county.

Quick Lime.—The subcarboniferous limestone along the I. & V. railroad, and in the ridge skirting Richland creek and Ore-branch, will furnish material for an abundance of good white lime. The limestone which overlies coal K, in the western part of the county, will at many places furnish a dark-colored but good strong lime, in every respect suitable for making mortar.

Fire-Clay.—This valuable mineral, which forms the substratum to coal-beds, has received very little attention in this county, and as yet no effort has been made to test its refractory qualities or adaptation to the manufacture of fire-brick. The bed of fire-clay which outcrops in the hill at Owensboro, is of excellent quality for the manufacture of stone-ware, and a pottery has been established by Mr. Reynolds on section 25, town 6, range 2, in which the Owensboro clay is used. This is a small factory, and turns out daily about one hundred gallons of ware consisting of crocks and jugs.

Ochre-Beds.—Beds of clay, colored with oxide of iron, are found at Patterson's near the mouth of Fish creek, on the line of the I. & V. railroad, in the edge of Owen county, also one and a half miles south-east of Salisbury, at Mr. Law's, on section 4, town 8, range 3. These ochres are of various shades of color, and make a good cheap paint.

Agriculture.—On the west side of White river the country is mostly level, or gently rolling, and there are quite a number of small fertile prairies. On the prairies and the broad bottoms along the streams, the soil is, with a few exceptions, a sandy loam, easy to bring into cultivation, and yields large crops of corn, wheat, oats, and grasses.

In the marshes or wet prairie lands, on Latta's creek, and at other places, the soil is a deep black muck, which is, in its present state, unproductive, but if properly drained and worked by deep plowing, in such a manner as to leave its particles well exposed to the oxidizing action of the atmosphere, will, in a few years, become one of the most productive soils in the county.

On the ridges and table-lands, the soil is, for the most part, a yellowish clay, that is not ordinarily as well adapted for growing cereals as the sandy loam soil; yet it is very productive, and with ordinary culture will yield from twenty to thirty bushels of wheat to the acre. It also produces fine crops of red clover.

That portion of the county lying on the east side of White river is quite broken, and the soil is mostly composed of yellow clay; though there are tracts of sandy loam land in the bottoms along the creeks.

The ridges on this side of the river form highly favorable locations for the cultivation of fruits, and though but little attention has yet been paid to this branch of agriculture in Greene county, some very good orchards are to be seen in the neighborhood of Bloomfield, and both apple and peach trees present a thrifty appearance.

Timber.—On the west side of White river the timber is generally small, comprising a variety of oaks and hickory. The eastern portion of the county is heavily timbered, and contains the usual variety of trees found in this latitude—such as poplar, oaks, black walnut, ash, sugar-tree, hickory, etc., etc.

PARKE, FOUNTAIN, WARREN, OWEN, AND VERMILLION COUNTIES.

In addition to making the survey of Clay and Greene counties, a small portion of the time available for this year's work was taken to ascertain the limits and probable extent of the *iron-smelting* or "*block-coal*" seams in the coal field lying to the northward of Clay county, leaving that portion of the basin which lies to the southward and west of those counties to be examined next season, it being found impossible for me to examine both districts in the few months that could be given to field explorations. Having made only a hasty reconnoissance of the counties named at the head of this section, and which are to be hereafter surveyed and reported upon in detail, my present sketch of their geology will necessarily be brief.

PARKE COUNTY.

In the eastern part of Parke county, and spreading over a belt of country from two to six miles in width, and in length extending from Clay county on the south, to Fountain county on the north, there are from one to three beds of "block-coal." In the southeastern part of the county, in Raccoon township, there are, at least, three beds. The position of these coal seams are designated by the letters F, I, and K, on the vertical section of the coals given on page 37, in the report on Clay county. I is the main "block-coal" at Brazil, F is the lower, and K the upper seam.

On the branches of North Otter creek, in Raccoon township, coal I outcrops at a number of places where it is from four to five feet in thickness, being an excellent quality of iron-smelting or "block-coal." As yet but little effort has been made, in this part of the county, to develop the coals; but since the commencement of work on the Indianapolis & St. Louis railroad, which will, when completed, furnish an outlet for mineral fuel, public attention has been called to this locality, and the coal lands are rapidly rising in value.

In parts of this district the lower "block-coal" seam F, which lies from twenty-four to thirty feet below coal I, attains a thickness of four feet, and is also a good quality of "block-coal" for smelting iron.

The "block-coal" belt in Parke county is broken into irregular basins by the conglomerate which crosses the belt along the Big and Little Raccoon creeks, and on Sugar creek. After passing beyond the conglomerate ridges on Big Raccoon creek, coals I and K make their appearance in the northwest corner of Raccoon township, and again after crossing the conglomerate ridge on Little Raccoon creek, they are found on Sand creek, in Washington and Adams townships.

The "block-coal" I, at Mr. Buchanan's mine, on Sand creek, is four feet thick. A specimen for analysis was taken from this mine, and gave the following result:

Specific gravity, 1.232; a cubic foot will weigh 77 lbs.

Coke, - -	64.5	Ash, white, - - - -	2.0
		Fixed Carbon, - -	62.5
Volatile matter,	35.5	Water, - - - - -	4.5
		Gas, - - - - -	31.0
	100.0		100.0

The coal is but slightly altered in coking, somewhat swollen, lamellar and semi-lustrous. This coal contains a large amount of fixed carbon, and is well adapted to smelting iron ores.

In Washington township coal K is from thirty to forty inches thick, and, although at most openings a bituminous caking coal, at Mr. Kyles' mine it is a good block-coal. On Sugar Creek this seam is sometimes a cannel coal.

The following section will exhibit the position of the coals on Sand and Sugar creeks, in Washington and Sugar Creek townships:

Soil and drift - - - - - -	10 feet	0 inches.
Sandstone and shale - - - -	8 "	"
Fossiliferous limestone, containing *Productus wabashenses*, *P. cora*, *P. semireticulatis*, *Spirifer cameratus*, *Athyris subtilita*, *Chonetes mesoloba*, *Bellerophon carbonaria*, *B. percarinatus*, *Orthoceras rushensis*, *Cyathaxonia prolifera*, large stems of *Encrinites* and *Eupachycrinus tuberculatus*, M. and W. -	2 feet	10 inches.

(Hon. B. E. Rhoads, to whom I am indebted for the name of this new and interesting crinoid, which has been recently described by Professors Meek and Worthen, informs me that it was found in this limestone, on Sand creek.)

Pyritiferous shale - - - - -	1 foot	0 inches.
Coal K, varying from a bituminous caking coal to a "block-coal" - -	3 feet	6 inches.
Fire clay - - - - - - -	?	
Gray siliceous shale, with iron-stone -	20—30 feet.	
Coal I, "block coal - 3 feet 6 inches to	4 feet	6 inches.
Fire clay, good quality - - - -	3 "	0 "
Sandstone, building stone, containing fucoidal markings that closely resemble the *Fucoides Cauda-Galli* - -	5 "	0 "
Siliceous shales, with bands of good iron-stone - - - - - -	20 "	0 "
Coal F - - - - - -	0 "	6 "
Soft, reddish, thick-bedded sandstone, conglomerate - - - - -	15 "	0 "
Bed of Sand creek - - - -	0 "	0 "
	100 feet	4 inches.

A specimen of the caking variety of coal K, taken from Mr. Batty's mine, on Sand creek, gave the following result:

Specific gravity, 1,231. A cubic foot will weigh 77 lbs.

Coke, - - - - -	58.5.	Ash, white, - - -	2.5.
		Fixed carbon, - -	56.0.
Volatile matter, -	41.5.	Water, - - - - -	3.0.
		Good illuminat'g gas,	38.5
	100.0.		100.0.

Coke swollen and porous.

This coal is mined in large cubes, and is a good steam and grate coal. Block-coal, suitable for blast-furnaces, is also found on Sugar creek, and its branches, in Sugar Creek township, ten to twelve miles northeast of Rockville, and the seam is here from thirty to forty inches thick.

In the western part of Parke county the southwesterly dip of the coal strata has brought up the higher beds, which in this county belong to the bituminous caking variety of coal, and are not suited for blast-furnaces.

The mammoth coal L, which is the equivalent of the coal at Lost creek mines, Staunton, Cloverland and Highland, on the Terre Haute & Indianapolis railroad, ranges from five to seven feet in thickness, and is opened and mined at the following places: Roseville (Gen. George K. Steele's mine), on the Evansville and Crawfordville railroad; Rosedale, on Big Raccoon creek; Clinton Locks; Jose Butler's, on section 7, town 15, range 8 west; and on Leatherwood creek, about four miles northwest of Rockville. At Jose Butler's mine the lower part of the bed possesses the quality of a "semi-block-coal." In this part of the county the underlying coal seams will rarely be found thick enough to be mined on a large scale with profit.

Section of the strata at Jose Butler's, on section 7, town 15, range 8.

Soil and drift, - - - - - - -	30 ft.	0 in.
Concretionary limestone, containing *Productus costatus*, *P. Rogersii*, *Spirifer cameratus*, *Athyris subtilita*, - - - - - -	0 ft.	6 in.
Black sheety shale, splits in thin laminæ, -	1 ft.	6 in.

Coal M?		1 ft. 0 in.
Fire clay,		3 ft. 0 in.
Greenish argo. shale,		4 ft. 0 in.
Black pyritiferous sheety slate, with fish-teeth, *Petrodus occidentalis*, spines and scales, *Cardinia fragilis* and *Aviculopecten rectilateraria*,		1 ft. 0 in.
Coal L,	Upper part containing irregular bands of iron pyrites, 2 ft. 5 in.	5 ft. 0 in.
	Pyritiferous clay parting, 0 ft. 1 in.	
	Bituminous coal 1 ft. 0 in.	
	Block-coal, 1 ft. 6 in.	
Fire clay,		5 ft. 0 in.
Argillaceous shales,		4 ft. 0 in.
Soft schistose sandstone		10 ft. 0 in.
Shales, covered,		21 ft. 0 in.
Black sheety slate,		0 ft. 6 in.
Coal,		1 ft. 6 in.
Gray shale,		8 ft. 0 in.
Black sheety slate, with fossil shells, of which *Cardinia fragilis*, *Orthoceras Rushensis*, were all that could be recognized,		3 ft. 0 in.
Coal,		0 ft. 6 in.
Gray shale,		6 ft. 0 in.
Black pyritiferous shale, passing into hard gray fossiliferous limestone, containing *Productus cora*, *P. costatus*, *P. wabashensis*, *Spirifer cameratus*, *Bellerophon carbonarius*, *B. Montfortianus*, *Orthoceras Rushensis*, *Chonetes mesoloba*, *Cyathaxonia prolifera*, and large stems of *crinoids*,		1 ft. 6 in.
Bed of branch.		

The limestone forming the lower stratum in this section was also seen at Armiesburg, where it is underlaid by a coal bed that may be seen in Big Raccoon creek at low water, which, in my opinion, is coal K.

The Evansville & Crawfordsville railroad runs in a northerly direction through the southern part of Parke county to

Rockville. At Roseville this road reaches the outcrop of the caking coal L, which is mined by Gen. George K. Steele, and at Catlin Station passes through a portion of the "block-coal" field. From one and a half to two miles east of this station "block-coal" I (?), from three to three and a half feet thick, and of excellent quality, has been opened on Mr. James Knight's land, section 4, town 14, range 7 west, and on the adjoining land to the west, belonging to Mr. Sunderland; and may be found underlying a broad district of country convenient to this road.

The Indiana & Illinois Central railway is located to run on an east and west line through the county, passing through Rockville and Montezuma. It will cross the "block-coal" field between Little Raccoon creek and Rockville; and the bituminous caking-coal field between Rockville and Montezuma.

Papers of association have recently been filed by the Indianapolis & St. Louis railroad company for the purpose of building a road from Brazil, on the Terre Haute & Indianapolis railroad, to run northward through Carbon, and from thence along the valleys of North Otter and Raccoon creeks to Montezuma, on the Wabash river, where it connects with the Evansville, Terre Haute & Chicago railroad, and with the Indiana & Illinois Central railway, under the name of the Raccoon Valley railroad; thus giving a direct route from the "block-coal" field, in the southern part of Parke, and northern part of Clay counties, to Chicago, on the north, and Decatur, on the west. The company having this road in hand has ample means at their disposal, which gives assurance that it will be built, and, when completed, will afford additional advantages for obtaining iron ores from Lake Superior.

Iron-Stone.—Where the creeks and branches cut through the shales that underlie the lower beds of coal, several bands of clay-ironstone are exposed to view, and the beds of the streams are, in such places, covered with ore that have been washed from the banks above. Though the quantity of this ore, at any one locality, may not be sufficient of itself to supply blast-furnaces, it may nevertheless be obtained in sufficient quantity to form an advantageous mixture with the Iron Mountain or Lake Superior ores.

Building Stone.—The conglomerate sandstone, which forms high cliffs on Big Raccoon, Little Raccoon and Sugar creeks, may be quarried in blocks of any required dimensions, and will make a handsome and durable building stone. At Mansfield, on Big Raccoon creek, this rock is of a beautiful reddish-brown color, closely resembling in appearance the brown sandstone of which the Smithsonian Institute at Washington, D. C., is built. It has been used in the construction of the abutments to the bridge which crosses the creek at Mansfield, where it has been exposed to the weather for several years, and gives evidence of being a durable stone.

A similar colored sandstone, from the conglomerate bluff on the Little Racoon creek, was used in the foundation of the large bank building in Rockville, and is highly spoken of as a building stone.

FOUNTAIN COUNTY.

From Parke county on the South, with here and there breaks in the continuity of the strata, the "block-coal" is traced through the central portion of Fountain county, as far north as Big Shawnee creek, in Shawnee township, and is partially opened and worked from outcrops at many places throughout this district.

In Shawnee township the seams of "block-coal" are generally thin, ranging from one and a half to two feet, but the quality is good. The most northerly coal seen in this county is about two and a half miles south of Attica. It lies on the top of the conglomerate sandstone, and is mined by stripping. This coal has not been worked for some time, and the pits from which it was mined by stripping were filled with debris so that I could not see its depth, but was informed that it is about eighteen inches thick. A few pieces of coal were found at the old pits, which served to indicate that it possessed the character of a good "block-coal." In the shales which overlie this coal, there are numerous nodules of earthy carbonate of iron that contain zinc-blende (sulphuret of zinc). A specimen of iron-stone from this locality, collected by the former State Geologist, Prof. Richard Owen, was at his request examined by me, and found to contain a notable quantity of rose-colored cobalt (*Remingtonite*).

In Van Buren township, on Dry Run, North Fork and East Fork of Coal Creek, "block-coal" has been mined for home consumption at a number of outcrops. The depth of the beds varies from two and a half to four feet, and the quality is equal to that of Clay county for the manufacture of iron.

On Mr. Geo. Lease's land, on the north fork of Coal creek, section 30, town 20, range 7 west, the following section was seen:

Drift,	2 ft. 0 in.
Soft shale,	0 ft. 6 in.
Coal,	1 ft. 6 in.
Fire-clay,	1 ft. 0 in.
Buff and gray argillaceous shale,	8 ft. 0 in.
Coal (I?) good "block-coal,"	3 ft. 0 in.
Fire-clay,	?
Black bituminous shale, with one to two inches of coal occasionally mixed through it,	20 ft. 0 in.
Bed of creek,	
	36 ft. 0 in.

This coal may be traced for a distance of one and a half miles farther up the creek by outcrops. It appears to occupy the position of the middle "block-coal" bed (I) of Clay county, but my hasty examinations in this county will not enable me, at this time, to decide upon its position in the continuous section of the coals given on pages 37 to 45.

Where seen, at Mr. Lease's in the above section, the coal appears to be split up by intercalated shales, and I was shown an opening farther up the creek where the bed is united, and its depth thereby augmented to four and a half feet.

At William Davis' place, on section 31, town 20, range 7, is found:

"Block-coal," - - - - -	1 ft. 6 in.
Argo. shale, - - - - -	1 ft. 0 in.
Hard, impure limestone, - -	3 ft. 0 in.

On the south side of Mr. Davis' farm, in the face of a low bluff, a bed of good "block-coal," full three feet thick, outcrops at a number of places, and probably lies from six to eight feet below the limestone of the above section which was seen on the north part of the farm.

At Mr. Davis' the coal has a good-sized hill above it, and may be conveniently worked at the outcrop by a drift.

A thin seam, from eighteen to twenty inches, of "block-coal," is seen on Miller's run, in the south edge of Covington, and may be followed for some distance, by outcrops along the line of the Indianapolis, Bloomington and Western railroad, which follows that creek. A "block-coal" bed, thirty to thirty-three inches thick, is also seen on Neal's branch, in section 2, town 19, range 9, and on Phœbus branch, in section 12, town 19, range 9, which probably belongs to the same horizon as the thin seams on the south side of Covington.

On Graham's creek, a branch of Coal creek, and on Coal creek, at many places, both in Wabash and Fulton townships, there are from two to three beds of bituminous caking coal. The lower bed is, however, in many localities, a *semi*-"block-coal." The places of these coals on Coal creek are provisionally given in the following sections:

Section at Mr. Mercer's mine on a branch of Coal creek, on section 30, town 19, range 8 west:

Covered slope to top of hill,			20 to 30 feet	0 inches.
Black slate,			1 "	0 "
Coal,			1 "	6 "
Gray argillaceous shale,			35 "	0 "
Coal I?	Hard, ringing coal,	2 ft. 2 in.	4 ft. 0 in.	
	Semi-"block-coal,"	10 in.		
	Caking-coal,	1 ft. 0 in.		
Fire-clay,			? ft.	
			71 feet 6 inches.	

A section was obtained on the Lafayette company's land, section 1, town 18, range 9, about one mile to the southwest of the former, which shows a middle coal that was not observed there:

Drift,	4 feet	0 inches.	
Shale,	? "	"	
Black slate,	1 "	0 "	
Coal,	1 "	6 "	
Shale,	8 "	0 "	
Coal K?	3 "	6 "	
Shale,	14 "	0 "	
Coal I?	4.8 to 5 "	0 "	
Covered slope to branch,	10 "	"	"
	47 feet	0 inches.	

On the Wallace place, in Fulton township, close to the Parke county line, in section 36, town 18, range 9, on Coal creek, the following section was seen:

Drift and covered slope,	20 feet	0 inches.
Flaggy sandstone,	6 "	0 "
Black sheety shale,	8 "	0 "
Limestone,	2 "	0 "
Semi-"block-coal," K? (which thickens up to four feet on the place of Jno. and Jas. Allen, on the opposite side of the hill,)	1 "	8 "
Fire-clay, (good potters-clay,)	2 "	0 "

Shale with covered space,	16	feet	0	inches.
Sandstone,	2	“	0	“
Coal I?	5	“	0	“
	62	feet	8	inches.

Close to Mr. Norman Thomas' house, on Silver Island, in the southwest corner of Fountain county, there is a high bluff, which faces the Wabash river, and presents a fine exposure of the coal measure strata. The following section was furnished by Mr. John Collett, of Eugene:

Drift,	20 to 30	feet	0	inches.
Gray argo. shales,	2 to 3	“	0	“
Coarse, black sheety slate,	4 to 5	“	0	“
Coal, brash,	0	“	8	“
Clay shale, place of quarry-rock,	6	“	0	“
Ferruginous, fossiliferous limestone,	0	“	6	“
Black bituminous sheety slate,	1	“	10	“
Coal,	1	“	6	“
White fire-clay,	3	“	6	“
Arenaceous shale with ironstone,	8	“	0	“
Band of nodular ironstone,	0	“	6	“
Black bituminous shale,	2	“	0	“
Fatty-coal,	1	“	6	“
Siliceous fire-clay,	2	“	6	“
Clay shale, with siliceous ironstone,	5	“	0	“
Gray argo. shale, with bands of ironstone,	4	“	8	“
Black band ironstone,	0	“	4	“
Cannel coal(?) slate,	0	“	8	“
Black sheety slate, with fish remains,	1	“	0	“
Coal (choice caking-coal),	1	“	8	“
Fire-clay,	6	“	0	“
Clay-shale, with ironstone,	2	“	0	“
Bituminous, fossiliferous limestone,	4	“	10	“
Coal K(?),	4	“	0	“
Fire-clay,	4 to 5	“	0	“
Soft sandstone,	2	“	0	“
Siliceous ironstone,	8 inches to 1	“	2	“

Flaggy sandstone, - - - -	6 feet 0 inches.
Coal I(?), semi-"block-coal," - -	3 " 0 "
Sandstone in river bed.	
	113 feet 10 inches.

It is my opinion that the second coal from the bottom in this section is coal K, and the mammoth bed L, which lies from ten to fifty feet above it, is here split up and represented by thin coals and beds of black bituminous slate.

The lower coal lies in the river bed, and occupies the position of the middle "block-coal" seam I.

Near the Wabash and Erie Canal, on the east side of Silver Island, (in which direction the county gradually slopes from the river bluff to the bottoms of Coal creek), Mr. Thomas has sunk a shaft to coal K(?), which passes through:

Soil and drift, - - - - -	10 feet 0 inches.
Argillaceous shale, with ironstone, -	1 " 0 "
Limestone, - - - - - -	1 " 0 "
Calcareous shale, - - - -	4 " 0 "
Coal K(?), - - - - - -	4 " 8 "
	20 feet 8 inches.

A few yards farther to the east the coal is mined from the outcrop, and has above it:

Fossiliferous limestone containing *Productus wabashensis*, *P. punctatus*, *Spirifer cameratus*, *Bellerophon carbonarius*, *Chonotes mesoloba*, *Athyris subtilita*, and a variety of other coal measure fossils, - - -		4 ft. 0 in.
Bluish-gray shale, - - - -		0 ft. 6 in.
Cannel coal, local, - -	0 ft. 4 in.	4 ft. 8 in.
" Semi-block-coal," - -	3 ft. 6 in.	
Streak of iron pyrites, - -	0 ft. 0⅛ in.	
" Block-coal," good, - -	0 ft. 4 in.	
Streak of iron pyrites, - -	0 ft. 0⅛ in.	
Caking coal, - - -	0 ft. 6 in.	

I was informed by Mr. Thomas that there is another seam of coal, about twenty feet below this, which corresponds to the bed of coal in the Wabash river at the bluff. Half a mile east of Thomas' mine, on the west bank of Coal creek, in section 36, town 18, range 8, the Wabash Petroleum and Mining Company are mining the same seam of coal, by stripping off the clay roof, where the stratum lies near the surface. The same coal also outcrops in the hills on the east side of Coal creek, and underlies a large area of country.

On Prairie branch of Coal Creek, at Thomas Arrowhood's, on section 4, town 18, range 8, these two seams of coal, K (?) and I (?), come close together, being separated by only two feet of fire-clay, and, at one exposure which I saw, show a combined depth of ten feet. About one and a half miles northeast of Arrowhood's, at the crossing of Coal creek, near Cooper's mill, the conglomerate sandstone forms a conspicuous bluff. The position in the coal measures and the synchronism of the Arrowhood coals with the two lower coals at Silver Island is well established by deep bores that have been made close by the coals at each locality. The artesian well at Lodi, a condensed section of which is given on page 31, is situated about two hundred yards southeast of Thomas' mine, and commenced in the bottom land below the coal, consequently no coal was passed in this bore. As a more detailed account of the strata passed through in this bore may be of interest, it is given as follows:

Drift, - - - - - - -	5 feet	0 inches.
Soapstone, with iron nodules -	5 "	6 "
Limestone, - - - - -	2 "	0 "
Shale, - - - - - -	8 "	0 "
Coal, - - - - - - -	1 "	0 "
White clay, - - - - -	3 "	0 "
Coal, - - - - - - -	1 "	0 "
Soapstone, with iron nodules, -	1 "	6 "
White sandstone, - - -	12 "	6 "
Fossiliferous limestone, with iron nodules, - - - - -	7 "	6 "

Sandstone, with cannel coal, bituminous coal, charcoal, and an oily substance,	10	feet	0	inches.
Argillaceous sandstone,	8	"	0	"
Argillaceous sandstone, with iron nodules,	16	"	9	"
Sandstone and soapstone,	12	"	7	"
Dark clay,	2	"	5	"
Soapstone, with coal,	3	"	7	"
Dark sandstone,	4	"	0	"
Shale,	4	"	3	"
Argillaceous sandstone, with mica,	2	"	10	"
Sandstone, fine-grained,	5	"	0	"
White sandstone,	15	"	0	"
Bituminous shale, with "oil bloom,"	5	"	10	"
Shale and coal,	6	"	3	"
Black shale,	9	"	0	"
White soapstone,	19	"	6	"
Sandstone, (base of conglomerate?)	31	"	11	"
Shale and soapstone, with thin seams of sandstone, (brackish water),	39	"	8	"
Shale,	15	"	3	"
Hard sandstone,	2	"	3	"
Sandy shale and soapstone,	62	"	5	"
Sandstone, fine-grained,	46	"	5	"
Soapstone with grit,	19	"	2	"
Hard-cap and shale,	12	"	3	"
Gritty soapstone, with shale,	53	"	7	"
Hard sandstone, with "oil bloom,"	10	"	4	"
Gritty shale, with salt water,	102	"	4	"
Sandstone and flint,	8	"	2	"
Soapstone, with iron pyrites,	44	"	11	"
(Salt water 5° Baume), Compact, coarse sand-rock,	64	"	10	"
Unctuous clay,	8	"	8	"
Soapstone, with fine grit,	65	"	5	"
Flint,	1	"	0	"

Gritty soapstone, - - -	32	feet	4	inches.
(Salt water 6.5° Baume),				
Sandstone, - - - - -	58	"	1	"
Soapstone, with unctuous shale -	65	"	7	"
(Lowest salt water 7.5°),				
Brown bituminous shale, which burns freely, and contains specks of iron pyrites, (Marcellus shale),	60	"	9	"
Blue soapstone and sandstone, -	20	"	5	"
Red bituminus shale, - -	25	"	11	"
(Oily matter,) hard, coarse-grained sandstone, - - - - -	22	"	1	"
White limestone, with coral and shells (Devonian), - -	12	"	0	"
Magnesian limestone, - - -	18	"	8	"
Sand rock, very hard, - -	22	"	0	"
Limestone, - - - - - -	23	"	0	"
	1,118	feet	9	inches.

The above well was bored on property owned by the Wabash Petroleum & Coal Mining Company. A quantity of water from this well was sent to Dr. Pohle, of New York, for analysis, and the result obtained shows that it is one of the most valuable medicinal waters in the country. An account of this analysis was given to me for publication, by one of the proprietors of the well, Mr. Nye, of Rockville, Indiana:

"It was found to yield the following dry, saline, and other constituents from the gallon, United States standard:

"Chloride of sodium, - - -	502.464	grains.
"Chloride of calcium, - -	47.928	"
"Chloride of magnesium, - -	53.540	"
"Sulphate of lime, - - -	55.553	"
"Sulphate of potassa, - - -	.804	"
"Sulphate of magnesia, - -	3.260	"
"Sulphate of soda, - - -	2.135	"
"Bicarbonate of lime, - -	2.904	"
"Bicarbonate of magnesia, - -	1.104	"
"Bromide of magnesium, - -	.880	"

" Iodide of magnesium,	trace.	
" Silicic acid,	.520	grains.
" Phosphate of lime,	1.200	"
" Sulphur, mechanically suspended,	.500	"
" Nitrogenous organic matter,	.800	"
" Total solid matter,	673.937	grains.

" It has a pleasant saline and sulphurous taste, and emits " the odor of sulphuretted hydrogen.

" Specific gravity at 60° F., 1.0112.

" Gaseous matter in one gallon:

" Sulphide of hydrogen,	7.94 cubic inches.
" Carbonic acid gas,	undetermined.
" Nitrogen and oxygen,	undetermined."

About one quarter of a mile west of Thomas Arrowhood's mine, a well was bored for salt to the depth of seven hundred feet, and passed through five feet of coal (the lower bed) at the depth of twelve feet, and no other coal was found in the well.

South-east of Thomas Arrowhood's, on the same section, the upper part of his great bed—which is generally overlaid by limestone—is seen where it is about four feet thick, and entirely disconnected from the lower bed.

Some of the best bituminous caking-coals in the State are to be found on Coal creek, and when rendered accessible to market by the railroads that are now being built, they will be eagerly sought after for fuel and gas purposes.

The Thomas' coal, K? is for the most part a semi "block coal," and in my opinion will answer as fuel in the raw state, to manufacture pig-iron. A specimen was analyzed, and gave the following result:

Specific gravity, 1,277; a cubic foot weighs 77 lbs.

Coke,	64.3	Ash, dark brown,	4.5
		Fixed carbon,	59.8
Volatile matter,	35.7	Water,	3.0
		Gas,	32.7
	100.0		100.0

The coke is light, porous, much swollen, and without lustre.

It is at present mined by a company who pay Mr. Thomas a royalty of a half cent. per bushel. They ship, by the canal, about ten tons daily to Lafayette, where it has a high reputation as a steam and grate coal.

A trial of the relative heating value, and capacity for generating steam, was made of the Danville, Illinois coal, and Thomas' " Silver Island " coal, in a steam mill at Lafayette, last July (1869), with the following result:

4,210 pounds of Silver Island coal kept the steam up to full 60 pounds, for seven hours and forty-five minutes, while 4,260 pounds of Danville coal would only sustain the same pressure of steam for five hours and twenty-five minutes. This test shows a gain of 42.8 per cent. of heating capacity for the former coal; or, in other words, seventy bushels of Silver Island coal are equal to one hundred bushels of Danville coal.

Iron-ore.—In the shale above and below the coal seams on Coal creek, there are to be found numerous bands of ironstone (earthy carbonate of iron), that will go a great ways toward supplying blast-furnaces. In the bluff facing the Wabash river at Mr. Thomas', the bands of iron-stone will, in the aggregate, amount to more than two and a half feet in depth; and similar beds are to be seen on Coal creek.

Salt-Brine.—Good strong brine may be obtained anywhere in the vicinity of Coal creek or its branches, in Fulton and Wabash townships, and in the southern part of Troy township, by wells, at the depth of six hundred to one thousand feet.

Three wells have been bored for salt and oil in the above named district, and they all passed through several veins of brine, varying in strength from 6.5° to 9.5° Baume. The horizon of these brines may be seen by reference to the section of the bore made near Lodi, given on page 37. It will require from sixty-five to seventy gallons of the best brine to make a bushel (50 lbs) of salt, which is fully as strong as the brine on the Kanawha river in Western Virginia.

Mr. Norman Thomas, of Silver Island, made salt for many years, in this county, from a brine obtained from a well which he bored on Coal creek, and only suspended operations in consequence of not having sufficient manufacturing facilities to compete with the salt works of Michigan and New York, which, at that time, were sending salt to northern Indiana at an extremely low rate of freight by means of the Wabash and Erie Canal.

Some years ago I made an analysis of the brine from the "Thomas salt-well," that was published by Prof. Richard Owen in a report that he made to the Wabash Petroleum and Coal Mining Company, which is reproduced here, together with the remarks made by Prof. Owen in relation thereto:—

"By Baume's scale, the brine sent by you indicated 8⅓°, "(distilled water at 60° F. being zero,) every degree denoting one per cent. of salt, and 36½ being the greatest "amount that water at any temperature can take up. The "specific gravity of the same brine (distilled water at 62° "F. being 1000,) was found to be 1060. To render the "above more intelligible to salt boilers, I may add that the "brine you sent floats an egg, with a portion appearing "above the water. Salt makers are in the habit of saying "that, under ordinary circumstances of cheap fuel and "proximity to market, any brine will pay in which an egg "will float. But as this is a very indefinite standard, the "egg floating higher or lower in different brines, I have com-"pared the egg test with the salt hydrometer of Baume, and "here give the result. In water containing 8⅓ to 9 parts of "salt in 100 (hence indicating 8⅓ to 9° Baume) a fresh egg "will float, but be nearly covered. At anything below 8° "it sinks, but at 10° to 10½° B., (or specific gravity 1075 to "1080,) and in all brines above that strength, an egg will "float high.

"The brine from your 'Thomas well' gave of solid matter 84.82616 parts in 1000. That solid matter consisted "of the materials given below:

"Carbonic acid (free),	0.01615.
"Oxide of iron and silica,	0.02880.
"Carbonate of lime,	1.83850.
"Sulphate of lime,	0.04991.
"Chloride of magnesium,	0.90823.
"Chloride of calcium,	3.68225.
"Chloride of sodium (pure salt,)	78.30232.
"Water, and trace of organic matter,	915.17384.
"Total solid matter in 1000 grains,	84.82616.

"Your well requires 72.4 gallons of water to produce a "bushel (fifty pounds) of pure salt."

I also copy, from *Kane's Chemistry*, the following "*Table showing the number of gallons of Salt Water producing a bushel of salt, in different parts of the United States:*

Nantucket Salt Water,	350
Boon's Lick, Missouri,	450
Conemaugh, Pennsylvania,	300
Shawneetown, Illinois,	280
Jackson, Ohio,	213
Lockhart, Mississippi,	180
Shawneetown, 2d Saline,	123*
St. Catharine, Upper Canada,	120
Zanesville, Ohio,	95
Kanawha, West Virginia,	75
Grand River, Arkansas,	80
Illinois River,	80
Montezuma, N. Y. (old wells),	70
Grand Rapids, Michigan,	50 to 60
Muskingum, Ohio,	50
Montezuma, N. Y. (new well),	50

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* New Saline, 75 gallons.

Onondaga, N. Y. (old wells),	40 to 45
Onondaga, N. Y. (new well), Syracuse,	30 to 45

The "Thomas Well" still produces a good flow of brine, which, at the time of my visit, was pumped by hand, and made into salt on a limited scale by a man who was permitted to use the Company's kettles, nine in number, free of charge. He collected the fuel used under the kettles from the fallen forest trees, and carried it to the works upon his shoulders, pumped the water, and in fact did all the work about the establishment himself, and was making about one barrel of good white salt per day. I had no means of testing the strength of this brine at the well, and the small bottle of brine collected for examination at the laboratory, was broken in the transit.

The saliferous strata in this State are reached in the subcarboniferous sandstone formation, which underlies the limestone, and is co-extensive with the coal measures.

Building Stone.—The conglomerate sandstone in this county furnishes an abundance of good freestone for building purposes. In color it ranges from whitish-gray to a brownish-red.

Quarries of this stone have been opened near Attica, on the Toledo, Wabash and Western railroad, in Logan township, and afford a coarse-grained, grayish-brown, durable sandstone, that can be quarried in blocks from one to four feet or more in thickness, and of any required length and width. Other quarries have also been opened at Portland, on the Wabash and Erie canal, where a stone similar to that from Attica is obtained.

WARREN COUNTY.

My examinations in this county were very limited, being made solely with a view of determining the character of the coal-beds on the northern limits of the Indiana coal-field.

The stratified rocks of this county belong, for the most part, to the millstone grit epoch; the prominent feature of this formation being a heavy bedded sandstone, that occupies the geological position of the conglomerate sandstone; but here it contains no quartz pebbles. It is a coarse-grained, durable building-stone, and in color it varies from grayish-brown to reddish-brown. The jail at Williamsport is constructed of rock quarried from this member of the series which forms the Williamsport falls, sixty to seventy feet high, and outcrops in all the hills around the town.

In the road, on the north edge of Williamsport, there is an outcrop of subcarboniferous limestone, of a few feet in thickness, which contains a few fossils characteristic of the Keokuk beds. Half a mile south of the town there is a very good spring of cool chalybeate water, that breaks out from the base of the conglomerate sandstone, from which is deposited a large quantity of calcareous tufa and ferruginous matter.

A qualitative chemical examination of this water was made in the laboratory after my return home, and its principal constituents are:

Sulphate of protoxide of iron.
Carbonate of protoxide of iron.
Bicarbonate of lime.
Bicarbonate of magnesia.
Chloride of sodium (common salt).
Sulphate of soda (Glauber salts), small quantity.
Sulphate of magnesia (Epsom salts), small quantity.
Free carbonic acid.

This is properly a saline chalybeate water, and its medicinal properties are tonic and aperient.

The coal-measure strata which make their appearance in Pine township, contain at least two seams of good "block-coal," from two and a half to four feet thick. The principal mine visited was on a branch of Pine creek, and was opened and worked to a considerable extent by Alexander A. Rice, of Attica, on section 19, town 23, range 8. The section at this mine is as follows:

Drift, - - - - - - -	10 feet.
Buff siliceous shale, - - - - -	2 "
Coal I? good "block-coal," - -	4 "
Fire-clay, - - - - - - - -	2 "
Gray shale, - - - - - -	18 "
Shale, with bands of sandstone, - -	8 "
Blue argillaceous shale, with bands of ironstone, - - - - - -	6 "
Bed of Creek,	
	50 feet.

At Dick's mill, on Pine creek, the following section was seen, which underlies the section obtained at the coal-mine:

Drift, - - - - - - -	10 (?) feet.
Bluish argillaceous shale, with bands of iron-stone, - - -	60 (?) "
(The lower band of iron-stone is fully six inches thick.)	
Rough, false-bedded sandstone, with stems of plants much broken, -	8 "
Bed of Pine creek.	

This section underlies all the coal.

Coal has been mined at a number of other places in Pine township, which I did not have time to visit; but, as the county is to be surveyed in detail hereafter, and the object of my visit having been accomplished in tracing the iron-smelting or "block-coal" to the northern limits of the coal basin in Indiana, further examination was not deemed necessary at this time.

OWEN COUNTY.

My examinations in this county were confined to a very narrow strip along the southwestern border of the county, in Marion and Jefferson townships. In these townships the "block-coal" seam ranges from three-and-a-half to five feet in thickness, and, in quality, is equal to any in Clay county for manufacturing iron. All that is needed to bring the coals of this district into market and induce the building of blast-furnaces, is the establishment of railroad facilities.

VERMILLION COUNTY.

The survey of this county was made by my assistant, Prof. Frank H. Bradley, whose able and interesting report will be found in this volume, page 136. It only remains, therefore for me to add a few remarks embracing an account of the result of my own observations, made subsequent to the survey of Prof. Bradley, and during a trip hastily undertaken, at the request of a number of the leading citizens of the county.

Previous to my personal examinations in this county, it was not known that "block-coal" could be found within its borders, and its discovery was first made public through the newspapers, immediately after my return to Indianapolis, on the 15th of November, 1869.

The "block-coal" of Vermillion county, so far as known at present, underlies all the ridge land between Highland, on the south, and Newport, on the north. But it is my decided opinion that it will be found still farther to the south, as the same seam underlies the greater part of the county from the Indiana blast-furnace, on the south, to the Horseshoe on the Little Vermillion river, on the north.

Owing to the inclemency of the weather and the want of time, I was unable to determine the width of the field.

The total thickness of the bed ranges from five to seven feet, and is separated into two or more seams by thin partings of shale or fire-clay. The lower part of the bed (from thirty to thirty-six inches) is good "block-coal," and the upper two to three feet above the clay parting is caking-coal.

On the map of Vermillion county which accompanies this volume, and in Prof. Bradley's report, this bed of coal is marked No. 6, and is, in my opinion, equivalent to the mammoth coal L of the connected section of Clay county coals, given on pages 37 to 45.

I am led to this conclusion not only from stratigraphical investigations, but from the fact that coal L, on the Terre Haute & Indianapolis railroad, in Clay county, and still further south, in Greene county, contains in its lower portion more or less "block-coal." This character of the mammoth seam is also apparent in General Steele's mine at Roseville, in Parke county, and quite marked at Jose Butler's, in the same county, a few miles southeast of Highland. At Mrs. Leatherman's, on section 27, town 16, range 9, and at Mr. Furman's mine, and the Groves' or Mill bank, south of Newport, from thirty to thirty-six inches of the seam is good "block-coal." A sample from the Mill bank was subjected to approximate analysis, and gave the following result:

Specific gravity, 1.289; a cubic foot weighs 80.5 lbs.

Coke, - -	52.2.	Ash, white, -	4.5.
		Fixed carbon, -	47.7.
Volatile matter, -	47.8.	Water, - -	3.5.
		Gas, good illumint'g,	44.3.
	100.0.		100.0.

This is a free-burning, non-caking, white ash coal, contains a small quantity of water, and has a larger quantity of gas than Pittsburg coal. It appears to be free from sulphur, and will undoubtedly make a good blast-furnace coal.

The Evansville, Terre Haute & Chicago railroad, which crosses the Wabash river at Clinton, and runs through the entire length of this "block-coal" field, will afford excellent facilities along its line for the location of blast-furnaces. As this railroad connects at Danville with another railroad running direct to Chicago, and is crossed at Highland by the Indiana & Illinois Central railway, running west to Decatur, in Illinois, no location in the "block-coal" region of the State can be more favorable for manufacturing iron, and for obtaining the Lake Superior iron ores at a low rate of freightage.

In close proximity to the "block-coal," large quantities of earthy carbonate of iron can be obtained from the shale-beds which underlie it. Bands of this character of iron-stone, that have a total thickness of from six to ten inches, or more, may be seen near the "Mill-bank," where the subordinate shales have been washed bare on the slopes of the ridges, and in the deep cuts made through the strata by the small creeks and branches.

Prof. Bradley, in his report, mentions a number of localities where iron-ore in considerable quantity can be obtained, and there are, no doubt, many others that have not yet been discovered.

The Indiana Blast-furnace, in the southwest part of the county, obtained its ore from this geological horizon, and experienced no difficulty in finding an abundant supply, though it was in blast for a number of years, and consumed daily from thirty to forty tons of ore.

At the time of my visit to the Indiana Blast-furnace, Mr. Sparks, who lives on the property, and is one of the owners, was absent from home, consequently I was unable to learn anything definite regarding its history; and, as yet, no answer has been received to a note which I left at his residence asking for information on this subject. It is reported, however, that it went out of blast soon after the breaking out of the rebellion; and owing to its distance from railroad facilities, and the growing scarcity of timber for charcoal, it has not since been put in blast, but not from any want of ore.

The outer wall of the stack is built of sandstone, and I should judge it to be about forty-feet high, and nine feet across the boshes. It was arranged for hot-blast, and used charcoal for fuel. The daily make of metal would be about nine tons. The boilers, engine, and blowing cylinders appeared to be in good order.

I had but little opportunity to examine the character of the coal beds in the neighborhood of this furnace, but fully believe that a seam equivalent to the Leatherman and Mill bank coals may be found here of a quality that will also answer for smelting iron ores; in which case the Indiana furnace may be again put in blast, and run with profit, if placed under proper management.

The pig-iron, which is still to be seen at this furnace, bears testimony that the ores yield an excellent quality of metal. As many as three thick seams of coal, with a total depth of twelve to sixteen feet, are found over a large area of this county, and the quality will compare favorably with that of any other coals in the State.

ANALYSIS OF COALS.

COUNTY.	NAME OF MINE OR OWNER.	Specific Gravity.	Weight of one Cubic Foot.	Fixed Carbon.	Ashes.	Coke.	Volatile combustible matter. Gas.	Water.	Total Volatile Matter.
Clay	Barnett's Mine*	1.250	78.12	57.0	1.5	58.5	37.5	4.0	41.5
Clay	Garlick & Collins' Mine*	1.230	76.87	57.5	3.0	60.5	31.0	8.5	39.5
Clay	Knightsville No. 1 Mine*	1.176	73.50	59.8	0.3	60.1	30.9	9.0	39.9
Clay	Knightsville No. 2 Mine*	1.167	72.93	57.0	2.0	59.0	33.0	8.0	41.0
Clay	McClelland's No. 1 Mine*	1.279	79.93	54.7	1.5	56.2	38.8	5.0	43.8
Clay	McClelland's No. 2 Mine*	1.270	79.93	53.0	2.5	55.5	40.0	4.5	44.5
Clay	"Star" Mine*	1.242	77.62	61.5	2.5	64.0	32.5	3.5	36.0
Clay	Newburg Mine.	1.327	82.93	47.3	6.0	53.3	39.7	7.0	46.7
Greene	Babbitt's Mine	1.238	77.30	59.9	1.5	61.4	35.6	3.0	38.6
Greene	Bledsoe's Mine	1.251	78.20	63.0	0.5	63.5	29.5	7.0	36.5
Greene	Harrell's Mine	1.263	78.31	48.1	2.5	50.6	42.4	7.0	49.4
Greene	McKissick's Mine*	1.189	74.37	62.5	2.0	64.5	32.0	3.5	35.5
Greene	Templeton's Mine*	1.238	77.37	59.3	4.5	63.8	28.7	7.5	36.2
Parke	Batty's Mine	1.231	76.93	56.0	2.5	58.5	38.5	3.0	41.5
Parke	Buchanan's Mine*	1.232	77.00	62.5	2.0	64.5	31.0	4.5	35.5
Fountain	N. Thomas' Mine†	1.277	79.81	59.8	4.5	64.3	32.7	3.0	35.7
Vermillion	Grove's Mine*	1.289	80.50	47.7	4.5	52.2	44.3	3.5	47.8
Roan County, Tennessee	Rockwood's Mine	1.331	83.18	68.9	4.5	73.4	24.1	2.5	26.6
	Pittsburg Coal	1.278	79.75	56.9	1.0	57.9	41.1	1.0	42.1
Lehigh, Pennsylvania	Anthracite Coal	1.590	99.37	91.0	2.5	93.5	3.5	3.5	6.5

* "Block"-coal. † Semi-"block"-coal.

ANALYSIS OF IRON ORES AND SLAG.

COUNTY.	OWNER'S NAME OR TITLE OF COMPANY.	Specific Gravity.	Loss by Ignition.	Sesqui-oxide of Iron.	Protoxide of Iron.	Alumina.	Manganese.	Lime.	Magnesia.	Sulphur and Phosphorus.	Insoluble Silicates.	Per cent. of metallic Iron.
Greene	Richland Furnace ore bank.....	2.585	7.50	54.73	——	2.50	1.14	.12	.03	none.	34.00	38.31
Greene	Richland Furnace ore bank.....	2.583	11.50	56 00	——	2.00	——	10.00	3.60	none.	17.00	39.20
Monroe ...	Virginia Furnace ore bank.....	2.56	10.00	58.50	——	trace.	——	——	——	none.	31.50	40.95
Marion ...	Slag from Ind'p'lis rolling-mill		Gain .029	——	70.00	2 14	.25	trace.	trace.	——	15.94	62.37

Analysis of PEAT from St. Joseph County................ Coke........................36 { Ash, dirty yellow........................ 9.5
{ Fixed carbon........................26.5

Coke: Shriveled, earthy, and lustreless................ Volatile matter........................64. { Water........................ 8.5
{ Gas........................55.5

100. 10 .0.

GEOLOGY OF VERMILLION COUNTY.

BY FRANK H. BRADLEY.

Vermillion county is bounded on the north by Warren county, on the east by Fountain and Parke counties, with the channel of the Wabash river as a boundary line, on the south by Vigo county, and on the west by Edgar and Vermillion counties, of Illinois. It is thirty-six miles long, and varies in breadth from five to ten miles, with an average of a little less than seven miles, thus including an area of 249 square miles.

Of this area, from one-fourth to one-third consists of the rich bottoms and terraces of the valleys of the Wabash and its affluents, the Big and Little Vermillion rivers and Norton's creek. A study of the details of the terrace-topography would be very interesting, but the time allotted to the survey of this county allowed of only a passing notice of its general features. The main terrace, or "second bottom," is especially developed in the region between Perrysville and Newport, a fact probably resulting from the combined action of the two main affluents which join the Wabash within these limits. The terrace is here from one to four miles wide, furnishing a broad stretch of rich farming lands, and has an average elevation of about forty feet above the present bottoms. Below Newport the bluffs approach the river so closely that the terrace is nearly obliterated, and the bottoms themselves become very narrow. At the mouth of Little Raccoon creek the bottoms are considerably widened, but the terrace has no considerable extent, until we reach the head of Helt prairie, about six miles north of Clinton, whence it stretches southward, with an average width of from two to three miles. It narrows again, about three miles below Clinton, as we approach the mouth of Brouillet's creek, and the county line.

At the first settlement of the country, the bottoms were heavily timbered, but a large part of the terrace was so-called prairie, being entirely clear of trees. It is probable, however, that this was the result of ancient clearing by the Aztecs, or Mound-builders, whose "mounds" are quite numerous in this region; and that, during the period when the Indians occupied the country, their annual fires prevented the growing up of the clearings.

Rising from the terrace we find more or less abrupt bluffs, which attain a general level of from 120 to 130 feet above the river, and form the slightly-elevated border of Grand Prairie. The most gradual ascent is to the westward of Perrysville, and this has been selected as the best route for the Chicago, Terre Haute & Evansville railroad, although the coal and iron interest would rather favor a location south of the Big Vermillion. South of this stream the bluffs are much steeper, and a moderate grade could be obtained only by following up the valley of one of the smaller streams. The slopes of these bluffs are generally too steep for convenient cultivation, and are, through nearly their whole extent, still heavily covered with timber, principally consisting of oaks, hickories and walnuts, though beech begins to take a prominent place as we approach the southern end of the county. In many of the ravines, and along the foot of the bluffs, there are large groves of the sugar maple, from which considerable quantities of sugar and molasses are annually drawn. Near the principal streams this timbered region extends westward to the State line; but in both the northern and middle portions of the length of the county, considerable portions of its territory form parts of the Grand Prairie, which stretches, with few breaks, northward to the Illinois river, and westward nearly to the Mississippi.

The county is well watered by its numerous streams, and by the strong springs which, especially in its northern half, burst forth at short intervals from below the "boulder-clay" of the drift period.

GEOLOGICAL FORMATIONS.

The alluvium of the river bottoms shows the common characters of river deposits, having animal and especially vegetable remains thoroughly intermingled with the fine sand and mud washed from the drift beds higher up the streams, and occasionally deposits of small stones, derived either from the drift or from the rock formations into which the rivers have cut in various parts of their courses. The only definite knowledge obtained as to the depth of these beds refers to the prairie between Eugene and Perryville, where wells have been sunk sixty feet through alluvial sand, and then encountered six to ten feet of a soft, sticky, bluish mud filled with leaves, twigs, and trunks of trees, locally known as "Noah's barn-yard." The lake-bottom deposits, of corresponding age, which commonly underlie the soil of the Grand prairie, were found in place a short distance west of the State line, consisting of marly clays and brick-clay subsoil, and probably exist equally under such portions of the prairie as extend into this county.

The gravel beds, which commonly form the upper member of the drift formation, have not been noticed within the county, though they may exist in its western portion, where the heavy prairie soil and subsoil prevent a knowledge of the underlying beds.

The "boulder clay," which forms the mass of the drift formation, is a tough, bluish-drab, unlaminated clay, more or less thoroughly filled with fine and coarse gravel, and including many small boulders. On the bluff west of Perrysville this bed was penetrated to a depth of about one hundred feet before reaching the water-bearing quicksand commonly found beneath it. Outcrops of 110 feet have been measured, and the bed very probably attains a thickness of 125 feet or more, where it has not been subjected to denuding forces. It is much thinner in the southern part of the county. From the difference in character of the included boulders at different levels, we are led to the conclusion that the currents, which brought the materials composing these beds, flowed in different directions at different times. To illustrate this I will give the following section, observed upon a branch of Johnson's creek, for which I am indebted to John Collett, Esq., of Eugene. (Johnson's creek debouches at the "toe" of the Horseshoe bend of the Little Vermillion, flowing from the east.)

Soil,	0 feet	0 inches.
Boulder-clay, with pebbles of Silurian limestone and trap,	30 "	0 "
Yellow clay, with fragments of coal, shale, sandstone, etc.,	0 "	4 "
Boulder-clay, with pebbles of Silurian limestone,	25 "	0 "
Ferruginous sand,	Streak.	
Boulder-clay from the northwest, with pebbles of various metamorphic rocks and trap, and nuggets of native copper,	50 feet	0 inches.

A considerable portion of the boulders and pebbles of these beds, especially those consisting of limestone and the metamorphic rocks, are finely polished and striated on one or more of their sides, showing the power of the forces which were engaged in their transportation from their original beds. Nuggets of galena (sulphide of lead) and of native copper are occasionally met with, and have had the usual effect of exciting the imaginations of persons who are ignorant that the rocks which contain these metals do not occur nearer than the galena region of Northern Illinois and Southern Wisconsin, and the copper mines of Lake Superior. Well-diggers, in the adjoining part of Illinois, have informed me that they are accustomed to find, near the bottom of boulder-clay, a thin layer of gravel, which contains a small quantity of gold. I have never taken pains to ascertain its outcrop, as the amount is too small to be of any value.

The coal measures furnish the only rock formations to be found in the county. Of these the outcrop at the Horseshoe bend of the Little Vermillion furnishes the highest, and this consideration, with others, leads me to commence the review of their outcrops at this point, although it is so near the middle of the county.

The section of the rocks exposed at the Horse-shoe is as follows, measuring from the top downward. The numbering of the beds is made continuous as far as the mouth of the Little Vermillion, while the numbering of the coals correspond with the system which Prof. Cox* has adopted, as expressing most correctly the distribution of the different seams throughout the Indiana, Illinois, and western Kentucky coal-field.†

1.	Black slaty shale, with *Discina nitida*,	?
2.	Coal, "No. 8,"	2 ft. 6 in. to 4 ft.
3.	Fire-clay,	15 ft.
4.	Soft clay shales, with ironstones,	
5.	Argillaceous limestone, with *Productus longispinus*,	1 ft. 0 in. to 2 ft.
6.	Dark drab clay shale,	1 ft.
7.	Soft, nearly black shale,	0 ft. 6 in.
8.	Coal "No. 7,"	4 ft. 0 in. to 5 ft.
9.	Light colored fire-clay,	2 ft.
10.	Dark colored fire-clay,	1 ft.
11.	Soft drab shale, with ironstones, *Productus*, etc.,	10 ft. 0 in. to 15 ft.
12.	Fossiliferous, black slaty shale, often pyritous, with many large iron-stone nodules,	2 ft. 0 in. to 3 ft.

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* The system of numbering here referred to by Prof. Bradley, is given in a general section of the coal strata arranged by me for the Geological Report of Illinois, and was compiled principally from information obtained in making a survey of Gallatin and Saline counties, Illinois, and Union county, Ky.

Though the arrangement and numbering of the coal-beds in this section is believed to be accurate, for that region of the coal-field, I have not, as yet, been able to make the coal seams in this part of Indiana agree with it, and have, consequently, in my own report, used letters, provisionally, for the co-ordination of coal-beds, until a thorough study of the coal-measures in this State has been made. E. T. C.

† A letter written by me to John Collett, Esq., of Eugene, on Nov. 26th, 1868, and published in the newspapers of the Wabash valley, used a different set of numbers for the coal-seams, as the result of an attempt to co-ordinate them with the series of numbers adopted by Prof. Worthen, of the Illinois survey, for the coals of the Illionis valley; but finding that certain coals occurring on the Wabash had no place allotted to them in that system, I have been obliged to give it up, and now substitute therefor numbers, which will serve for the present identification of the different seams, but will probably require some change when the completion of the survey of the State shall have enabled us to arrange an accurate system of all its beds.

13. Coal, "No. 6,"	5 ft. 0 in. to 7 ft.
14. Soft, black, shaly clay,	1 ft. 0 in. to 3 ft.
18. Fossiliferous, slightly sandy shales, with small ironstones,	6 ft. 0 in. to 10 ft.
19. Drab shale, bottom concretionary,	20 ft. 0 in. to 43 ft.

Though I have looked carefully for it, I have never succeeded in finding any outcrop of the beds which overlie this section; and of the black shales which appear as its top layer, I have seen only specimens, as its outcrop was covered during the period of my survey of the county. The coal No. 8, as seen by me, had a covering merely of a few feet of soil. The samples of the roof-shales which I have seen are readily distinguished from those of coal No. 6, by their comparative freedom from pyrites, and the great numbers of *Discina* which accompany them, while this shell is only scantily present in the shales of No. 5.

The argilaceous limestone (5 of the section,) is here quite thinly laminated, being mingled with much clay; but the shales between it and coal No. 7 are here rather more solid than at some other points, and make a very fair working roof. About a mile farther up stream, at the upper end of the Horseshoe, the limestone is very solid, but the underlying shales are very soft, and appear likely to fall in the workings. The bed is not now worked at this point.

The section at this point is as follows:

5. Compact argillaceous limestone,	2 ft. 0 in.
6. Greenish shaly clay,	1 ft. 0 in.
7. Soft black shale,	0 ft. 4 in.
8. Coal, No. 7,	4 ft. 0 in.
9 and 10. Fire-clay,	?
Covered,	15?
18. Sandy shales,	10 ft. 0 in.
19. Dark drab to gray concretionary clay shales,	25 to 30 ft. 0 in.

The space marked "covered," evidently includes the equivalents of Nos. 11 to 14, but no signs of coal No. 6 could be detected upon the outcrop. It is possible that it has locally thinned out and disappeared; but from the constancy of this bed wherever I have looked for it, along a line of outcrop of more than forty miles, I believe that it and the other missing beds, will be found here also when the debris shall have been removed from the slope, with the possible addition of Nos. 15 to 17, which are absent from the locally thinned section at the "toe" of the Horseshoe. It is a little curious, however, that so near to the *only known appearance* of No. 8 in the county, we should meet with the *only apparent failure* of this constant seam. A mistake in identification of seams at once suggests itself; but I believe that no such mistake has been made in this instance.

The sandy ironstones accompanying No. 18 of the section, are interesting to the fossil-hunter, as containing numerous fragmentary remains of fishes, mingled with fragments of *Neuropteris*, *Pecopteris*, *Cordaites*, etc. The last mentioned genus is also frequently present with *Discina* and the long fin-spines of *Petrodus occidentalis*,* in the pyritous ironstones in the roof of coal No. 6.

Upon ascending Johnson's branch, which enters the Little Vermillion at the "toe" of the Horseshoe, we find, upon the first left-hand ravine, an outcrop of coal No. 5, its presence being due to a local disturbance of the strata. As its normal relation to the section already given is better shown elsewhere, I give no section at this point. The disturbance mentioned is plainly indicated along the Little Vermillion by a great thinning of the beds below coal No. 6. This is partially shown by the variation in thickness ascribed to No. 19 of the given section; but a much greater difference is indicated by the dip of the beds at a point where the line of demarcation has passed below the level of the stream.

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* I am aware that these long spines, feathered out upon the concave side like a slab of whalebone, and somewhat thickened along the convex edge, have not been described as *Petrodus*; but their universal occurrence, in company with the conical bony scales which are referred to this genus, has compelled me to conclude that they belonged to the same animal.

About a mile below the toe of the Horseshoe, near the so-called "silver-mine" of the "slip-bank," the following section was taken:

13.	Coal, "No. 6," - -	4 to 5 ft. 0 in.
14.	Fire-clay, top dark, bottom light drab, including a band of calcareous iron stone ("silver-ore"), - -	0 to 3 ft. 5 in.
15.	Light bluish-drab gray shale,	8 to 10 ft. 0 in.
16.	Olive colored gray shale, slightly sandy, with bands of siliceous iron stone, -	8 to 10 ft. 0 in.
17.	Nearly black clay shale,	1 ft. 8 in.
18.	Light gray, slightly sandy shale, with fossiliferous bands of calcareous iron stone and argillaceous lime stone, - - - -	11 ft. 0 in.
19.	Dark drab concretionary shale top fossiliferous, - -	16 ft. 0 in.

Numbers 18 and 19 are especially interesting for their great abundance of fossils, of which the following are the more abundant: *Deltodus*, *Bellerophon percarinatus*, *Nautilus*, *Spirifer cameratus*, *Spiriferina Kentuckensis*, *Productus scabriculus* (very fine interiors often found), *P. punctatus*, *P. longispinus*, *Chonetes*, *Athyris subtilita*, *A. Royissii*, *Terebratula bovidens*, *Hemiphronites crassa*, *Aviculopecten* 2 sp. Along Fall branch, just above the "silver mine," on the opposite side of the river, the calcareous material of the beds equivalent to these bands is concentrated into a heavy compact limestone nearly two feet thick, with comparatively few fossils. In the branch above are numerous small, loose blocks of an impure limestone, perfectly *filled* with *Productus longispinus:* their proper place in the section was not ascertained. About a mile further down stream, near White's Mill, we find the following section, beginning with the bluff at the head of the mill-pond, as seen from the mill, and running to the bluff below the mouth of Jonathan's creek:

18. Compact and pisolitic iron ore with shales, - - - - - - -	2 ft. 0 in.
19. Clay shales, light and dark, hard and soft, - - - - - - - -	35 ft. 0 in.
20. Black calcareous ironstone, - -	0 ft. 8 in.
21. Black slaty shale, - - -	2 to 3 ft.
22. Soft black shale, - - - - -	0 ft. 6 in.
23. Coal, "No. 5," - - - - -	4 to 6 in.
24. Dark-drab soft clay shale, with ferns,	2 ft. 0 in.
25. Harder shales with sandy layers, -	1 to 10 ft.
26. Quarry sandstone, coarse, ferruginous, with plant remains, - - - -	4 to 9 ft.
27. Shaly sandstone and sandy shales, some layers carbonaceous, with ferns, some ripple-marked flags, - -	15 to 20 ft
28. Dark-drab clay shales, - - - -	15 to 20 ft.
29. Clay shales, with thin bands of clay ironstone, full of fossil, - - -	3 to 5 ft.

The black roof-shales of coal No. 5 commonly contain large numbers of the conical teeth (or scales) and long fin-spines of *Petrodus occidentalis.* The overlying black ironstones also contain this species, together with a few Mollusks, of which the most common are *Orthoceras Rushensis* and *Cardiomorpha Missouriensis.*

From the shales, No. 24 of the section, John Collett, Esq., of Eugene, reports the following plants: *Neuropteris hirsuta*, *Pecopteris*, *Hymenophyllites*, *Asterophyllites*, *Cordaites*, *Sphenophyllum*, *Lepidodendron* and *Sigillaria.*

The ironstone bands of No. 29 of the section are crowded with fossils, mostly small, but generally well preserved. The following are the more common: *Orthoceras Rushensis*, *Pleurotomaria*, *Loxonema*, *Bellerophon Montfortianus*, *Macrocheilus*, *Spirifer cameratus*, *Astartella*, *Leda*, *Phillipsia.*

Going on toward Newport, we find the beds of the foregoing section, as high as No. 20, exposed at intervals on the hill-sides, but gradually rising to make room for the lower beds, of which the following is an average section:

30. Clay shales, - - - - - -	6 to 8 ft.
21. Black slaty shales, rich in fossils,	2 to 3 ft.
32. Coal, "No. 4," - - - - -	18 to 20 in.
33. Fire clay, dark, shaly, with *Stigmaria*,	4 to 6½ ft.
34. Shales, - - - - - - -	30 to 50 ft.
35. Ironstone bands and nodules in shales,	2 to 5 ft.

At Morehead's bank, one mile above Newport, on the south-west quarter of section 28, township 17 north, range 9 west, a local change of dip brings coal No. 4, which at one point had reached an elevation of nearly sixty feet above the river, down again very nearly to water level. Its roof-shales, everywhere quite fossiliferous, are here especially rich in scales, teeth, and spines of fish, including the minute comb-like teeth so frequently mentioned by Lesquereux in Owen's Geology of Indiana (1859–'60), and in nearly perfect specimens of a crustacean closely allied to *Ceratiocaris.*

Below this point no outcrop is visible until we reach the mouth of the river, where a bed of highly fossiliferous, calcareous ironstone, a few inches thick—probably the equivalent of No. 35 of the foregoing section—is exposed at low water. This is especially noticeable for the great numbers of *Serpulæ* which fill the entire mass, sometimes attached to other fossils, sometimes running free, as though the layer had been a calcareous mud, affording support to the thin tubes.

As we go down the bottoms south of Newport, we find, in the numerous ravines and gullies excavated in the bluffs by the small streams, fine sections of the equivalents of the beds noted in the foregoing sections, as high as the roof of coal No. 6, of which an average section is nearly as follows:

Sandy clay shales, with pisolitic ironstone nodules, - - -	5 ft. 0 in.
Soft clay shales, - - -	2 ft. 0 in.

Coal "No. 6,"	4 ft. 0 in. to 7 ft. 0 in.
Indurated fire-clay,	3 ft. 0 in.
Clay shale, partly sandy and micaceous,	25 ft. 0 in.
Black calcareous ironstone,	2 in. to 2 ft. 0 in.
Black slaty shale,	3 ft. 0 in. to 4 ft. 0 in.
Coal, "No. 5,"	8 in. to 3 ft. 0 in.
White fire-clay, mostly silicious, sometimes changing to sandstone,	2 ft. 0 in. to 6 ft. 0 in.
Argillaceous sandstone, some portions very shaly, others solid ferruginous, lower portion more or less concretionary, with thin irregular ironstone bands,	70 ft. 0 in. to 80 ft. 0 in.
Light drab clay shales,	10 ft. 0 in.
Black shale, mostly slaty,	2 ft. 0 in.
Coal "No. 4,"	1 ft. 8 in.
Fire-clay, sometimes very dark and shaly, with a thin band of compact sandstone, containing *Stigmaria*,	3 ft. 0 in. to 10 ft. 0 in.
Fossiliferous calcareous ironstone,	1 ft. 0 in.
Black slaty shale,	1 ft. 6 in.
Shaly cannel, fossiliferous,	2 ft. 0 in.
Coal, "No. 3,"	streak.
Fire-clay,	3 ft. 0 in.

The beds below coal No. 4, lie just at the base of the hills, and are generally more or less covered by debris, so that the exact section is often difficult to obtain; but the thin band of very hard stigmarial sandstone serves as a very reliable landmark. I observed it, either in place or slightly removed, every few rods, for some miles below Jackson's mill. The calcareous ironstone of the subjacent bed is also pretty constantly developed, being the equivalent of the before-mentioned outcrop, at the mouth of the Little Vermillion; but along the lower part of this range it is below the level of the bottoms. It is also interesting for its abundant fossils, beautifully preserved, including *Nau-*

tilus, *Serpula*, *Pleurotomaria*, *Productus*, *Chonetes mesoloba*, *C. punctulifera*, *Hemipronites crassa*, *Spirifer cameratus*, *Crania*, *Aviculopecten rectilateraria*, *Entoliam aviculatus*, *Cyathaxonia*, etc. The *Craniæ* were found attached within the outer chamber of a *Nautilus*. The underlying black shales and shaly cannel contain many *Aviculopectens*, with *Petrodus occidentalis*, *Orthoceras Rushensis*, and occasionally *Cardinia fragilis*.

On Whit. Jackson's farm, about four miles below Newport, wells sunk in the edge of the bottom many years since, but now filled up, are said to have penetrated coal No. 2, at a depth of about twelve feet. An attempt was made, during the past summer, to ascertain the truth of this by digging; but repeated floodings of their pit discouraged the workmen, and the problem is still unsolved.

About three miles below Newport, near the head of Wimsett Hollow, on section 10, township 16 north, range 9 west, one of the small branches, on the right as you ascend, has an exposure of about two and a half inches of "black band" iron ore accompanying the roof shales of coal No. 5, and containing an abundance of *Pleurotomaria*, *Bellerophon*, *Loxonema*, *Productus*, *Chonetes*, *Mytilus*, *Nucula*, *Astartella*, etc.

In the top of the bluff, east of Highland, the heavy bedded sandstone occurring just below coal No. 5, has been considerably quarried, as it here furnishes a very permanent building stone, and attains an extreme local thickness of twenty feet.

On the various branches of Little Raccoon creek, we find essentially the same section exposed piecemeal, here and there.

South of Little Raccoon, following the road under the bluffs, there appears a local rise of the strata, which, within a short distance, brings up coals No. 3 and No. 2. No. 3 is a thin seam, and has not been worked at any point, so far as known; Its level is known to be from twelve to fifteen feet above No. 2, at Wilson's coal bank, one mile above the head of Helt prairie, and in a ravine, a hundred yards west of that point, it shows twenty inches of coal, with a roof of black slaty shale and calcareous ironstone. No. 2 is here from four to five feet thick, with only a thin covering of soil so far as yet worked. It has been opened, some time since, in the ravine aforesaid, where it is reported to be divided into two seams by a clay parting two feet thick. It appears to be the equivalent of the four foot seam worked just above Thomas's Ferry, on the Wabash, below the mouth of the Big Vermillion.

From this point the rocks dip again immediately, and about a mile farther south coal No. 4 has been opened in the edge of the bluff by the side of the road.

Thus far the heavy band of quarry rock, which holds a tolerably constant position in the shaly sandstones below coal No. 5, has served to keep the hills pretty high by reason of its slow yielding to denuding forces; but below here this band rapidly dips below water level, and there is only a small elevation between the main valley and that of Norton's creek.

[In passing from the valley of the Wabash to that of Little Raccoon, just below Highland, we find, on the contrary that this quarry sandstone is high up in the hill, and that the termination of the dividing ridge is comparatively abrupt.]

In following up the Eastern branch of Norton's creek from the head of Helt prairie, I was unable to find or hear of any outcrop—the boulder-clay covers everything. Small quantities of black shale were noticed in the drift of the western branch of the creek, but it was not traced to its source. Judging from the outcrops lower down the stream, I inferred that No. 6 outcropped on the upper part of this western branch.

Near the head of Helt's prairie, at Hawley & Helt's coal bank, No. 5 shows a local thickness of from twenty inches to two feet, with the usual roof of two or three feet of black slaty shale containing fish remains. In some portions of the mine there occurs a bed of from four to six inches of dark drab, compact clay shale, with *Pecopteris* and *Avicu-*

lopecten rectilateraria, intercalated between the coal and the black shale. This was not met with elsewhere.

A short distance farther down the creek, near the mouths of the ravines upon which are situated Nebeker's and White's coal-banks, this seam, which has kept near the level of the stream all the way, has returned to its usual thickness of from eight to ten inches. Near the heads of these ravines No. 6 is largely developed, and has been extensively worked. Its roof here consists almost entirely of massive concretions of pyritous carbonate of iron, only the *chinks* being filled with the black shale which commonly forms the roof of this seam. A layer of shale, however, overlies the ironstones. Many of these ironstones are rich in fossils, which are most readily obtained after the nodules have been exposed to the weather for some time. Among them we especially note, *Aviculopecten rectilateraria*, *Petrodus occidentalis*, *Productus longispinus*, *Discina nitida*, *Lingula*, *Cardinia ? fragilis*; *Edmondia ?* and *Solenomya*. The *Cardinia* also occurs in the overlying black shales, sometimes accompanied by *Stigmaria*, all the fossils being rendered noticeable by a brilliant thin layer of iron pyrites. The section of this locality is as follows:

Black shale, some slaty,	3 ft. to 4 ft.
Nodular band of pyritous and silicious ironstone,	1 ft. to 2 ft.
Coal, "No. 6,"	5 ft. to 6 ft.
Fire-clay and soft clay shale,	4 ft.
Ferruginous sandstone — bottom, hard firestone,	6 ft. to 7 ft.
Sandy shales, changing below to dark drab clay shales with ironstones,	40 ft. to 50 ft.
Black slaty shale (and locally calcareous ironstone),	2 ft. to 3 ft.
Coal, "No. 5,"	8 ft. to 10 in.
Shaly clay, with *Stigmaria*,	?

Two and a half miles farther south, near Clinton, at

Van Ness's bank, No. 6 has descended to near high water mark, and soon passes below it as we go southward, making no farther appearance within the county, and showing again on this side the Wabash only at the point opposite Terre Haute, where Prof. Lesquereux reports it as worked near low water mark.*

The mass of the hill between the Wabash and Brouillet's creek, below Clinton, is composed of the shaly sandstones, sandy shales, and clay shales with ironstones, which form the larger part of the sixty or seventy feet of rock between coals No. 6 and No. 7. No section was found exposed in this part of the county which would give the exact distance between these two seams. At Mr. Skidmores place, about 3 miles west-south-west of Clinton, the "dirt" of No. 7 has been seen near the top of the hill, and some traces of No. 6 in the meadows at the foot of the hill. The distance between them was here estimated at seventy-five feet. I was informed by the miller at Hedge's mill, that in diving in the pool under the dam at that point, he had seen the outcrop of No. 6, five or six feet thick, with a black slate roof. A measurement from this point to the outcrop of No. 7 in the hill above, gave the distance at about fifty-five feet.

From near this mill to the Wabash the shales of this division contain numerous ironstone nodules of various sizes, in some of which fine specimens of fossil ferns have been found, though in not nearly so great abundance as at Durkee's Ferry, a few miles farther south in Vigo county.

In ascending Brouillet's creek, above Hedge's mill, we gradually approach the level of coal No. 7. Near the Indiana Furnace we find, upon Coal creek, the following section:

Greenish sandy shales, with ironstones, - - -	20 ft.
Drab clay shales, - -	15 ft. to 20ft.
Slaty coal, - - -	1 ft. to 3 ft.

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* Owen's Geology of Indiana, 1859-60, p. 330.

Coal, "No. 7," - -	4½ ft. to 6 ft.
Fire-clay, - - -	6 ft.
Sandy Shales, - -	10 ft. to 12 ft.
Argillaceous limestone, -	1 ft. to 2 ft.
Sandy shales, - -	8 ft. to 12 ft.
Compact sandstone, - -	3 ft. to 6 ft.
Greenish shales, - -	3 ft. to 4 ft.

The limestone here noted is a pretty constant accompaniment of No. 7 in this part of the county, at a slightly variable distance below it. It is here rather farther from the coal than I have seen it elsewhere. It is probably the equivalent of the limestone band found about fifteen feet below the same seam in the neighborhood of Danville, Illinois, though no such bed is present in the section taken on the Little Vermillion.

Going up Brouillet's creek, from the Indiana Furnace, we find No. 7 opened at various places, until within a very short distance of the State line, where it finally dips below water level. Not far above the section taken upon Coal creek, the overlying sandy shales yield, upon disintegration, large numbers of heavy ironstone nodules, which will be more particularly noticed under the head of "economical geology," although the principal source of supply lies beyond the Illinois line. A short distance beyond the line there is a streak of coal, from two to five inches thick, which may be the equivalent of No. 8, though circumstances would indicate that it more probably represents a higher seam, which is not exposed within the limits of Vermillion county. South to the county line No. 7 and its accompanying beds probably underlie the western half of the county, as the lower beds do the portion along the lower course of Brouillet's creek. Starting from the Horseshoe of the Little Vermillion I have followed the natural succession of outcrops, and am now obliged to turn about in order to deal with the northern end of the county.

In going northward from the mouth of the Little Vermillion we find, at various points along the Wabash, nearly to the mouth of the Big Vermillion, small outcrops of the ironstones and shales below No. 3, with this seam itself sometimes in place. About a mile below the residence of Mr. John Collett, and equidistant from Eugene and Newport, No. 2 has been seen at extreme low water, with a reported thickness of five feet, and the overlying band of ironstone is visible at ordinary stages of water. But, through the whole distance, it was found impossible to get a satisfactory section connecting these two seams.

In ascending the Big Vermillion we find on its south bank, a mile below Eugene, a bluff of banks of from twenty-five to thirty feet of irregularly bedded, highly ferruginous, coarse-grained sandstone, often containing comminuted plant remains, with some large fragments of trees, etc. Some of the beds are sufficiently solid to make good building stone. In quarrying them many fine trunks and branches of *Lepidodendron* and *Sigillaria* have been found, with a few fruits of *Trigonocarpum.* This bed is supposed, from its position, to be the equivalent of the sandstone belonging above coal No. 4, though it is rather more irregularly bedded, and of a coarser structure. Its position, however, is rather peculiar, for it lies in a hollow gullied into the lower strata to such a depth as to have removed both No. 4 and No. 3, and an unknown thickness of rock below them. The edge of this gully passes just below Eugene, where, at the ford, we see this sandstone lying over the edge of coal No. 3 and of from eight to ten feet of the underlying clays and shales. The position of the southern edge of the gully is not known, but the width is probably not very great, since the roof shales of No. 4 have been seen in place about one mile to the southward, in the bed of Tipton branch. (Just above that point a quarry in the overlying sandstone has yielded some fine large stems of the new species *Syringodendron Porteri*, Lsqx.) It would appear probable then that we have here a *fossil river* of carboniferous times, which may have flowed from the hills of conglomerate sandstone which still stand upon the east side of the Wabash, and show, by the position of the later beds about their bases on all sides, that they were really hills during the deposition of these later beds. Doubtless they were finally buried in the later deposits of the carboniferous age, and have more recently been repeatedly swept over by marine and fresh-water currents, but their relations to these later beds are evidently unchanged, and they stand to-day as they stood then—hills above the surrounding low lands.

On the river bank, back of the tavern at Eugene, the following section occurs:

Dark fire-clay, - - - - - -	2 ft. 0 in.
Soft black shale, - - - - - -	2 ft. 0 in.
Fossiliferous ironstone, - - - - -	2 to 4 in.
Soft black shale, - - - - -	0 ft. 6 in.
Black slaty shale and impure cannel, -	1 ft. 0 in.
Coal, No. 3, - - - - - -	1 ft. 0 in.
Compact sandstone, with *Stigmaria*, -	1 ft. 0 in.
Blue fire-clay, - - - - - -	2 ft. 6 in.
Buff and gray fire-clay, changing to sandy shale, - - - - - - -	5 ft. 0 in.

At the sawmill above town four feet of shaly sandstone cap the foregoing section. At S. Groenendyke's mine, above town, the following section occurs, which is an average representation of the condition of No. 4 in this neighborhood:

Dark-drab shale, with bands of ironstone nodules, - - - - - - -	12 ft. 0 in.
Black shale - - - - - -	2½ to 3 ft.
Shaly cannel, - - - - - -	1 ft. 0 in.
Black slaty shale, - - - - -	0 ft. 10 in.
Coal, - - - - - - - -	0 ft. 14 in.
Black shale, with pyritous nodules, -	0 ft. 15 in.
Coal, - - - - - - - -	14 to 20 in.
Fire-clay, - - - - - -	?

This section is peculiar as regards the shaly cannel in its roof shales, which character does not commonly appear in connection with No. 4; but I am unable to refer this coal to any other seam.

The section upon Browntown branch is interesting, on account of the disappearance of coal No. 5, (which has been seen nowhere north of White's Mill, on the Little Vermillion,) and for the presence of a valuable band of iron ore. It is as follows:

Black calcareous ironstone, - - -	1 to 2 ft.
Black slaty shale, - - - - -	4 to 5 ft.
Level of No. 5.	
Fire-clay, - - - - - - -	½ to 1 ft.
Shaly sandstone, - - - -	6 to 8 ft.
Heavy-bedded quarry sandstone, - -	9 to 10 ft.
Shaly sandstone, - - - - -	1 to 2 ft.
Compact ironstone band, changing to nodules, - - - - - - - -	0 ft. 2 in.
Sandy shale, - - - - - -	10 ft. 0 in.
Compact brown ironstone, with fish remains, - - - - - - -	18 to 20 in.
Sandy shale and shaly sandstone, with some ironstones, - - - - -	40 to 60 ft.
Shales of "No. 4," - - - - -	?

Near this point No. 4 dips below the present level of the Big Vermillion, and comes up again only at the Hanging Rock, and on Coal branch just back of it. Throughout the intervening distance, the roof-shales are seen at low water, proving its presence; and I am informed that it was worked at several points before the building of the dam at Eugene. The upper beds of the foregoing section, however, are very irregular in this neighborhood. Valuable bands of ironstone, and more or less sandstone and sandy shales are everywhere present, but the relative positions and thicknesses of the beds are exceedingly variable, as illustrated in the following section, taken at J. Jones', about two miles from Eugene, and representing the condition of things on an outcrop of about a hundred feet in length:

Blue clay shale-top with sandy streaks,	10 to 15 ft.
Covered,	3 to 5 ft.
Light brown ironstone, more or less calcareous,	1½ to 3 ft.
Drab shales—some places, pure clay; others, becoming sandy and micaceous and even heavy sandstones; with pisolitic compact ironstones, especially at top,	20 ft.

At Hanging Rock, and on Coal branch just east of it, we find No. 4 well developed and considerably worked; but here, even more than is common elsewhere in the county, it is split up into comparatively thin partings, separated by shale and fire clay. I am informed that it has shown here as many as five partings. The following is the section as exposed in 1868, beginning with the capping sandstone, locally known as the "Hanging Rock sandstone," and supposed to be equivalent to the "Mahoning" sandstone of the Ohio coal-field:

Heavy-bedded soft ferruginous sandstone,	20 ft. 0 in.
Black slaty shale, with ironstone nodules,	18 ft. 0 in.
Soft black shale with Productus and fish-teeth,	1 ft. 6 in.
Coal,	1 ft. 9 in.
Fire-clay and blue shale, with pyrites,	1 ft. 0 in.
Coal,	1 ft. 0 in.
Fire-clay,	1 ft. 0 in.
Coal,	2 ft. 8 in.
Fire-clay,	4 to 6 ft.
Black shale,	0 ft. 6 in.
Coal,	1 ft. 6 in.
Indurated fire-clay,	2 ft. 0 in.

One of these partings, said to be the third from the top, has been worked on Coal branch, with a thickness of from three to four feet.

The Hanging Rock itself projects considerably, in consequence of the disintegration of the softer, somewhat pyritous shales beneath it, forming a small shelter for cattle who frequent the place both for shelter and to lick up the copperas and alum which form in small quantities upon the surface of the decomposing shales.

Above the Hanging Rock no outcrop of No. 4 occurs, and the banks are composed of the overlying sandstones and sandy shales, with the black roof-shales of No. 5 forming a prominent feature, until we pass beyond the State line, where they are about thirty feet above the river. No. 5 itself is represented by from six to ten inches of soft drab clay shale. The roof-shales show an adundance of their usual fossils, *Petrodus* and *Aviculopecten*.

In going north from Eugene, I have, thus far, been unable to connect the sections of the south part of the county with the outcrops found at and above Perrysville. Below Perrysville the only outcrops known belong to the conglomerate or millstone grit, which is so largely developed on the east side of the Wabash; and the relations of this, even to the higher beds on that side of the river, are still undecided.

The Perrysville section is as follows:

Coal (reported, as found in wells), No. 1,? - - -	8 in. to 1 ft. 6 in.
Fire-clay, - - - -	2 ft. 0 in.
Soft blue clay shale, - -	12 ft. to 15 ft. 0 in.
Bluish drab shaly limestone, -	2 ft. to 3 ft. 0 in.
Blue limestone, bottom rich in fossils,	3 ft. 0 in.
Light blue and drab shaly clay,	1 to 2 in.
Soft, black, shaly, calcareous clay,	4 ft. to 6 ft. 0 in.
Black slaty shale, - -	3 ft. to 4 ft. 0 in.
Soft, black, shaly, calcareous clay,	3 ft. to 4 ft. 0 in.
Light drab calcareous argillite, rich in fossils, - -	1 ft. to 4 ft. 0 in.
Soft, black, shaly, calcareous clay,	1 ft. 0 in.
Black slaty shale, - -	5 ft. to 0 ft. 6 in.
Soft black shale, -	12 ft. to 15 ft. 0 in.
Dark drab shale, with ironstones at top,	27 ft. 0 in.

Exactly the same section occurs on Rock creek, in Warren county, where the beds lie directly, and apparently conformably, upon a set of shaly sandstones, which are continuous with the conglomerate sandstone of Williamsport, only becoming more purely quartzose and more solid as we descend the section. These shaly sandstones include a thin bed of very impure brash coal, about sixty feet below the limestone, which may represent "No. 1 A," but more probably belongs to an unnumbered seam commonly known as the "conglomerate" coal. Three or four miles below Rock creek, near Evans's coal mines, we find another band of limestone of very similar character, from thirty to forty feet above the equivalent of the Perrysville bed, and marks of one or more coal seams between them. Above this upper limestone are the two beds now worked, which considerably resemble Nos. 3 and 4. I believe that, by a little careful work in that neighborhood, one could find a section which would settle the doubtful points.

Wells sunk below the limestone at Perrysville, to a reported depth of ninety feet, are said to have encountered no coal, and it appears doubtful, at present, whether any valuable seam, at least, exists there.

The old limekiln just above Perrysville, on the bank of river, was dug in the soft clay shale of the base of the foregoing section, and shows no disturbance of the layers; yet within fifteen feet of this kiln we find a small quarry of sandstone, which extends from the base to the top of the bluff, cutting off even the limestone. Judging from observations on the east side of the Wabash, I conclude that this is an extension of the conglomerate sandstone, which either stood as an island or projected as a promontory in the old sea whose mud composed these shales and limestones. Just north of this point, the limestone is thicker than at any point south of it, and a slight difference has been noticed in the fossil contents upon the two sides, although, for half a mile to the southward, this feature is constant. On the north side the limestone runs only a few rods, giving no opportunity to ascertain whether the more southern characters would obtain at a suitable distance from the obstacle. On the north side, close to the sandstone, some thin streaks and patches of coal have been observed, none of which appear to the southward. The lower shales, also, upon the north side, contain a few ferns and other coal-measure plants, none of which have yet been detected upon the south side. As the appearance and contents of these beds, as seen upon Rock and Redwood creeks, in Warren county, seem to be identical with their appearance and contents on the south side of this sandstone hillock, I am disposed to assume that these are the normal conditions of rocks deposited at that period in the open sea, and that the changed conditions on the other side have resulted from special local influences.

Along all the small streams which fall into the Wabash, between Perrysville and Covington, there are beds of fern-bearing shales, accompanied by thin seams of coal, which *appear* to belong *below* the Perrysville beds; but I have been unable to find any certain clue to their exact position. Their fossils indicate that they are *low* in the series, but cannot help us to any more definite conclusion. *Neuropteris hirsuta*, *Alethopteris Serlii*, *Cordaites borassifolia*, and *Gyromices ammonis*, are the most abundant fossils of these beds, while *Lepidodendron*, *Lepidophyllum*, *Trigonocarpum*, *Asterophyllites*, *Hymenophyllites*, *Filicites*, and fragments of bivalve crustaceans are occasionally met with.

As the Perrysville beds contain a very interesting group of fossils, I give here a complete list of the forms thus far collected at that point. From the limestone: *Phillipsia scitula*, *P. Sangamonensis ?*, *Bellerophon*, *Naticopsis* n. sp., *N. nodosa*, *Euomphalus rugosus*, *Loxonema* 2 or 3 sp., *Spirifer cameratus*, *S. lineatus*. *Spiriferina Kentuckensis*, *Athyris subtilita*, *Rhynchonella Osagensis*, *Productus semireticulatus*, *Chonetes mesoloba*, *Hemiphronites crassa*, *Discina nitida*, *Lingula*, *Placunopsis*, *Aviculopecten*, *Fusulina cylindrica*, Crinoid stems and Bryozoans: from the black shales: *Orthoceras Rushensis*, *Nautilus*, *Euomphalus?*, *Productus*, *Chonetes mesoloba*, *Discina nitida*, *Edmondia ?*, *Aviculopec-*

ten rectilateraria, *Spirifer planoconvexus*, *Petrodus occidentalis:* from the calcareous argillite: *Nautilus latus?*, *Goniatites*, *Macrocheilus* (large), *Pleurotomaria carbonaria*, *Spirifer cameratus*, *Rhynchonella*, *Athyris subtilita*, *Productus*, *Chonetes mesoloba*, *Aviculopecten Coxanus*, *Solenomya radiata*, *Cyathaxonia prolifera.*

All of the rock strata here described have a general dip toward the southwest, at a rate of from fifteen to twenty feet to the mile, but this is modified greatly by various causes, so that it were possible to find local dips in almost any direction, and sometimes with quite a rapid pitch. Starting, then, from the eastern side of the county, where we stand upon the lower beds, we pass, on level ground slowly, on rising ground more rapidly, to higher and higher beds; until, when we reach the State line, if upon moderately high ground, we stand upon or above beds higher than any which we have crossed in our trip. The *principal* irregularities of dip have been pointed out as we went along; but the accurate delineation of these irregularities would require far more careful and expensive examinations than could be afforded.

Having thus sketched, as much in detail as seemed advisable, the distribution of the rock formations of the county, though with the omission of multitudes of interesting details, I will now proceed to that part of my report which should treat of

ECONOMICAL GEOLOGY.

The first subject to which the seeker for mineral wealth, in this county, would turn his attention is the coal supply. The first impression of the superficial observer would be that there is a great abundance for all demands; and the final conclusion of the scientific explorer must be that good coal can *now* be mined profitably under at least *one-half* of the area of the county, and *ultimately* under probably *two-thirds* of the remainder. A thickness of eight feet would probably be a small enough estimate for the coal underlying every square foot of the county. This would give, at the usual estimate of one million tons to the square mile for every foot of thickness, the amount of 1,950,000,000 tons, or 48,750,000,000 bushels, as the supply of the county.

The highest workable seam is No. 8. This makes its only appearance in the county, and, indeed, in this whole region, at the Horseshoe bend of the Little Vermillion, where it shows a thickness of from two and a half to four feet, with a roof of black clay shale. It is a fat caking coal, rich in gas, and very sooty; good for blacksmithing or for grate fuel. Ash gray. This seam was formerly dug to some extent, but is at present neglected, in consequence of the large development of No. 7 and No. 6 at the same point.

At this locality, also, we find one of the only two localities within the county where No. 7 is worked. In the immediate neighborhood of the Horseshoe there are quite numerous openings into this seam, but only three or four of them are now worked. This is the equivalent of the main coal at Danville. It is a fat caking coal, good for engine or house fuel, and fair for blacksmithing if picked; but it is rather apt to be somewhat sulphurous. Ash reddish-brown. At the upper end of the Horseshoe, on Mr. Patrick's land, it has been considerably worked, with an average thickness of four feet; but the mines are now deserted. The shale between the coal and the heavy limestone roof appears to be rather soft, and the difficulty of supporting it has probably assisted in causing the desertion of the mines. At the "toe" of the Horseshoe the shale seems to be more compact, and stands very well in the two mines now open in this seam.

A barrel of coal, said to have been taken from this seam at Hibberly's bank, was sent by Josephus Collett, Jr., Esq., of Newport, to the rolling mill at Indianapolis, which, upon trial, proved to be fit for smelting iron. This is far better than the common coal of this seam; and I am rather inclined to believe that a mistake was made regarding the source of the coal sent, its character closely resembling that of the coal of No. 6.

As already stated, No 7 has not been seen north of this place within the county; but there is reason to believe that it occurs on the highest part of the ridge east of the Little Vermillion, nearly or quite continuously, to its outcrop near Georgetown, Illinois. Below the Little Vermillion it is undoubtedly in place along all the western boundary of the county, and can be reached by shafts sunk in the prairie whenever any considerable demand may arise for coal.* It does not, however, run far enough east to outcrop along any of the streams in the lower part of the county, until we reach Brouillet's creek, along which it is worked, at short intervals, all the way from the State line to Hedges' Mill, and also on Coal creek, in the adjoining part of Vigo county. In this southern extension we find the seam thickened up to nine feet in some places; but, of this, the upper one to three feet consist generally of a very impure "brash" coal, which is rejected in mining, under the false name of "slate." These openings supply a large demand through the adjoining part of Grand prairie. The outcrops are conveniently located, and the supply seems inexhaustible.

Along the Big Vermillion No. 6 is nowhere seen, east of the Illinois line; but it undoubtedly underlies a considerable portion of the space between that stream and the Little Vermillion, along which latter its outcrop is continuous from a point three miles below Georgetown to the "silver mine" below the Horseshoe. Throughout this distance openings are frequent, and large quantities of coal have been taken from them, but none are now extensively worked. It has been recently reported, also, upon W. Eggleston's land, about one and a half miles southeast of the "silver mine."

This seam also underlies the entire western portion of the county, but runs farther east than No. 7, outcropping in the higher hills along every stream between Newport and Clinton, just below which latter place it passes below the level of the Wabash. Where it first enters the county, along the

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*Serious difficulty can arise, in attempting to mine the coal at points upon the prairie, only from the possible presence here of the thick bed of water-bearing quicksand, which underlies the boulder-clay in the western parts of Edgar and Vermillion counties of Illinois.

Little Vermillion, this seam has a roof of soft dark-drab clay shale, containing fragments of ferns and the shells of the small Crustacean, *Leaia tricarinata.* But, as we descend the stream, this gradually becomes darker and harder until, at the Horseshoe, it is changed to or replaced by black slaty shales containing *Discina*, *Petrodus*, and other marine fossils, and accompanied by many large, black ironstone nodules, more or less sulphurous. This latter character is still more largely developed near Clinton, where the roof consists almost entirely of spherical nodules of sulphurous ironstone, two to three feet in diameter, closely packed together, and only the small interstices filled with black shale. The thickness of the seam is variable, ranging from four to seven feet. Through the northern part of the county, at least, it is generally a very pure coal, with the lower thirty to thirty-six inches—below the clay parting—a free-burning "block-coal," every way suited for smelting iron in the raw state. The upper portion of this seam swells some in burning, but makes a choice fuel for engine or house use. Ash white. The coal brought to Clinton from Nebeker's bank (No. 6) was observed to contain much of the "block," but circumstances prevented me from ascertaining how large a portion of the seam shows that character. Coal from this mine has displaced, for steamboat use, the product of mines nearer to Clinton.

No. 5, in the immediate neighborhood of so much larger seams of better coal, is not a very important source of fuel, and has been dug from only for local use except at two points, viz.: at Burns' bank, east of Highland, and at Hawley & Helt's bank, near the head of Helt Prairie. At Burns' bank, the seam is locally thickened to an average of about thirty-three inches, but yields only a rather coarse coal which burns with much flame and smoke, and leaves considerable cinder. Both here and at Hawley & Helt's bank, the coal was well spoken of as house fuel. At the latter place, the local thickness of the coal is about twenty-two inches. At all other points where this seam was encountered, it showed only from six to twelve inches of rather impure coal, and is entirely wanting at all points north of White's mill. At Burns' bank, and at two or three points along Jonathan's creek, the ordinary black roof-shales are wanting, and a rather solid sandstone takes their place; and at Hawley & Helt's bank, as previously stated, a few inches of dark drab compact shale are found between the coal and its roof. It has been observed that where the fire-clay of this seam is not silicious, the coal is apt to be more impure and less in quantity. I have not yet ascertained whether this law holds good where the coal is entirely wanting, as in the northern part of the county.

No. 4 takes a rather more prominent place among the sources of fuel, but is still in the background when compared with the higher seams. This is a very irregular seam, and the amount of fuel which it would yield at any unexplored point, could not be calculated with any certainty. Its different partings vary greatly in thickness, and often in character. As a general rule, the upper portions are composed of a good blacksmithing coal, rich in bitumen, while the lower parts are more splinty. It is liked for house use, but is not extensively mined on account of the thinness of the partings. The principal openings are at and near the Hanging Rock, on the Big Vermillion, about four miles above Eugene, on section 28, township 18 north, range 10 west. Ash reddish-gray, some clinkers. These are among the oldest workings in the county. At S. Groenendyke's mine, near Eugene, this seam has been considerably worked for house fuel. Just below Eugene, as already stated, No. 4 and No. 3 are both cut off by the previously described channel, now filled with sandstone; but its disappearance is only for a short space, since it appears again within a mile of town and continues southward, though it is nowhere worked until we reach Morehead's mine, a mile above Newport. In the ravines below Newport, and upon the branches of Little Raccoon, this seam has been frequently opened in a small way for local supply, but is nowhere of much importance. Its last appearance is about a mile below Wilson's bank, near the head of Helt prairie.

No. 3 makes no prominent show in the county. At Eugene it is too thin to be worked. In the ravine back of Wilson's bank, it is about twenty inches thick, but is neglected for the thicker and purer No. 2.

Wilson's bank is the only place where No. 2 shows above the ordinary level of the river. It is said to have been seen on the bank of the Wabash at low water mark, about a mile below Mr. John Collett's, with a thickness of about five feet. There is every reason to believe that it is continuous under nearly the entire prairie from Newport to Eugene, and beyond towards Perryville, and can be mined by shafts of moderate depth at any convenient point. Above Eugene, its outcrop, beneath the alluvium, probably holds a general north-north-westerly course from the mouth of the Big Vermillion, parallel to the outcrops of the higher seams.

I am also of the opinion that the coal, from two to three feet thick, which outcrops near low water mark on the east side of the Wabash at Thomas' ferry, and which is one of the partings of No. 1, probably runs under the same region, and will be found of workable thickness; but there are no *certain* data for this opinion.

To the northward of Eugene, these lower seams are nowhere visible: in fact, no rock is seen upon the surface between the floor of No. 4, on the upper part of Coal branch, and the fire-clay above the limestone at Perrysville. But, from the general regularity of the outcrops, wherever exposed in this region, it appears probable that after the completion of the Terre Haute and Danville railroad, it will be found profitable to bore for these lower seams, at some point or points upon the prairie west of Perrysville. A boring of two hundred feet would reach the lowest workable seam anywhere in that region, and, over a considerable part of it, one hundred and fifty feet would probably be sufficient.

Although the thin seams to the northward of Perrysville have not been co-ordinated with the beds of the connected section, yet there is reason to account them partings of

No. 1. Coal, from twelve to eighteen inches thick, occurs at several points hereabouts, and has occasionally been dug from the outcrop for local use. The seams will never be of any considerable importance.

Iron.—Accompanying the coal-measure rocks in this county, we find several valuable deposits of iron-ore. The principal ore is an impure carbonate of iron, occurring in nodules and irregular layers or "bands." Such nodules, accompanying the sandy shales above coal No. 7, furnished, for several years to the Indiana Furnace, on Bouillet's creek, an abundant supply of ore, yielding, on an average, thirty-three per cent. of iron. The ore varies much, however, some specimens yielding as high as forty-five per cent. while others would barely give twenty-five per cent. The principal source of this ore lies west of the State line, but much of it also occurs east of the line, along the branches of Brouillet's creek, both above coal No. 7 and between it and coal N. 6. At the latter level, the greatest abundance of ore was seen about a mile below Skidmore's place before-mentioned, in the ravines upon the east side of the creek. A few of these nodules are somewhat pyritous, but these could readily be detached in preparing the ore for the furnace. An attempt was once made here to use the coal of No. 7 in the furnace, and a number of kettles were cast from the iron produced; but the metal proved brittle, probably from the presence of sulphur, and the attempt was not renewed. No iron has been made here since 1859.

Coal No. 6, which, in this part of the county, generally furnishes a good "block" coal from its lower benches, apparently lies about fifty feet below the creek-bottom at this place; it would probably pay to open it and use the coal in the furnace, which is now lying idle, principally, it is said, in consequence of the scarcity of charcoal.

Small quantities of this ore were seen at two or three points, near the Horseshoe of the Little Vermillion, coming from the shales above No. 7; but the supply is limited.

Just west of the Illinois line, the shales above No. 6 yield large quantities of this ore.

Similar nodules were noticed along the Wabash, near the mouth of Spring creek above Perrysville; but the amount appeared to be too small to be of any practical importance.

The heavy ironstones mentioned as forming the roof of No. 6 in the vicinity of Clinton, generally contain so much pyrites as to render them valueless as ores, considering the present state of our knowledge upon the subject of freeing iron from sulphur.

The "black band" ore above No. 5, mentioned in the section taken upon Wimsett Hollow, three miles below Newport, although a very valuable ore, is probably not sufficiently abundant to be of any economical importance when taken alone; but if the nodules of pisolitc oxide of iron above No. 6, at the head of the main branch of that ravine, should prove to be sufficiently abundant for mining, this band might probably be used to advantage at the same time.

A coarse irregular band of calcareous ironstone, a few inches thick, often containing pisolitic iron "shot" through semi-crystalline calcite, with small quantities of zinc blende, accompanies the fire-clay of coal No. 6 at the "Silver mine" on the Little Vermillion, but the amount seems to be not large enough to make it of any importance.

The black calcareous ironstone which almost constantly accompanies the roof shales of coal No. 5, ought to be a valuable ore for use with the richer ones of Marquette, which are now largely shipped to Indiana for reduction. Its specific gravity, at some points, indicate a considerable percentage of iron, combined with lime suitable for fluxing. It sometimes contains silex, but this impurity is not common. The bed averages about a foot in thickness, but frequently thickens to three feet. The most favorable localities for examining it would be along the Big Virmillion, from the State line to within a mile of Hanging Rock, near the head of More branch, on Browntown branch, and at White's Mill on the Little Vermillion. At all these points it could be very easily mined. On the branch next east of Tipton Hollow, two miles below Eugene, large irregular concretions, ten to twelve feet in horizontal diameter, and two or three feet thick, occur in this bed. This structure is not common in the bed, but the sort of roughly conchoidal fracture, which generally characterizes it, may be semi-concretionary in its nature. This structure may well be called " shucky."

Upon Browntown branch, and along the Big Vermillion, as far as More Branch, there is a heavy band of quite pure light-brown calcareous carbonate of Iron, which is of considerable value. At some points the lime largely predominates, but the whole bed would probably average twenty-five per cent. of iron. The combination of this considerable amount of iron, with limestone suitable for fluxing, renders this, also, a very valuable ore for mixing with the richer oxides in the smelting-furnace. The seam varies from eighteen inches to three feet in thickness, and deserves more attention than it has yet received. On Browntown branch, it was observed to contain rather numerous rhomboidal fish scales, and it is possible that, upon analysis, it will be found to contain too much phosphorous to be fit for the furnace. Large quantities could be mined with very little trouble.

The shales lying between No. 4 and its heavy sandstone cover, frequently contain small quantities of ironstone nodules, as at Hanging Rock, where many of them contain fossil plants. But at no point do we find any considerable amount of ore at this level.

Near the top of No. 3 we find, pretty constantly, a band of a few inches of compact ironstone, filled with fossil shells of numerous species, as at the mouth of the Little Virmillion, and in the numerous ravines along the edge of the bluffs between Newport and Highland. At Zener's saw-mill it is a foot thick, and easily mined.

Close above No. 2, along the bank of the Wabash, about four miles below Eugene, we find a heavy bed of compact limonite (hydrated oxide of iron), which promises to be of considerable importance. The outcrop was covered with water at the time of my visit, but masses a foot thick, lying upon the bank, showed its character, and its full thickness was reported at from two to three feet. It would probably yield from forty to forty-five per cent. of iron. Except in times of freshet, it could be easily mined by stripping.

On Thomas Helt's land, along the bottoms of Norton's creek, near the head of Helt prairie, a bed of bog iron ore, said to be three feet thick, covers from six to eight acres. It was dug into some years ago, but none of it is now exposed.

On the whole, the county is abundantly supplied with iron ore of good quality, and the near neighborhood of the beds to the seams of "block" coal, will soon make this one the most important centers of iron production in the West.

Zinc blende (sulphide of zinc) frequently occurs, in small quantities, in the cracks and cavities of the ironstone nodules which accompany the shales above coal No. 6, and in the ironstone band which is found just above coal No. 4, along the Little Vermillion; but the amount is too small to be of any value. It was the scanty presence of this mineral in the pisolitic calcareous ironstone locally accompanying the under-clay of No. 6, which gave rise to the so-called "Silver-mine" at the "Slip-bank" of the Little Vermillion, on section 32, township 17 north, range 10 west. To geologists, it were needless to say that no silver bearing rocks occur in this region.

It is said that minute fragments of galena (sulphide of lead) have been seen in some of these nodules; and here, as everywhere else, "the Indians" have the credit of having mined lead in large quantities. Possibly they did "mine" it here; but, if so, it was only after they had first brought the ore from the Galena region, and buried it. Chunks of galena and of the native copper of Lake Superior are occasionally found in the drift. One of the small streaks of gravel, which occur in the "boulder-clay," is said to yield minute quantities of gold, through all this region, but not in sufficient quantities to pay fair days' wages for washing it.

Clays.—Next to coal and iron, the under clays of the coal seams take the most important place among the mineral resources of the county. The bed which underlies coal No. 5 seems to be, both from its character and extent, the most valuable one of all, being generally of a lighter color than the underclays of the other seams. At Burns' bank, east of Highland, it was especially noticed as being nearly pure white, and from two to six feet thick. At some parts of its outcrop, as at certain points on Jonathan's creek, the clay, which is everywhere quite silicious, is locally changed to a very compact, semi-crystalline sandstone, full of the rootlets of *Stigmaria*, similar to that before mentioned as marking the level of No. 4, below Newport. This clay is continuous through the whole outcrop, though of varying thickness. In the southern portions of the county it was noticed that the thinner and more "brash" portions of the seams had the more silicious fire-clay. The material seems especially well fitted for the manufacture of tiling, both useful and ornamental, as well as for fire-brick. For the latter purpose the under clays of No. 6 are also suitable, though likely to make a darker brick. On Trosper branch of the Big Vermillion, perhaps a mile west of the State line, and four miles northeast of Georgetown, Illinois, these clays, including some thin intercalated beds of limestone, are over sixteen feet thick, and show a considerable variety of colors. At no point within the county was so great a thickness observed, from two to six or eight feet being the ordinary thickness; but it is not improbable that, at some of the openings of this seam which will certainly be made upon the ridge between the Big and Little Vermillions, clay of similar thickness and coloring may be met with.

Building Materials.—In a letter from Mr. John Collett, of Eugene, dated 3d of January, 1870, he says:

"Bricks have been manufactured at about forty-five different localities in this county, embracing every variety of material. Those manufactured from the 'boulder-clays' of the table-lands adjoining the Grand prairie, especially when made of materials unexposed to oxidation of the air, are of light color, somewhat approaching the brownish cream color of the 'Milwaukee' brick; in other respects are a fair article. Bricks have often been made from the sandy loam of the creek and river bottoms, sometimes adding a small proportion of 'terrace' or 'boulder-clay.' This material requires more care in burning, as the alkaline potash, etc., held in solution by the water, is set free by access of air, and this, with the great amount of vegetable matter, readily forms, in connection with the sand, a coating of glass. Experiments have been made at Perrysville, and at Newport, resulting in the manufacture of good fire-brick from the 'under clays' and decomposed shales and soapstones so abundant throughout this county."

Of stone suitable for building purposes there is no lack. Some of the more heavily bedded, slightly ferruginous sandstone layers of the sandy shales between coals No. 7 and No. 6 have been quarried, on a small scale, along the hill between Clinton and the mouth of Brouillet's creek. The heavy bedded sandstone, which commonly lies from ten to thirty feet above coal No. 4, has yielded more stone for building purposes than any other bed in the county. Along the Little Vermillion, just below White's Mill, it generally varies from four to nine feet in thickness, and is a fine building stone, but some of the accompanying layers, though looking quite solid in the quarry, will not resist the disintegrating action of the weather, and must be rejected. From this layer considerable rock has been quarried, along the Big Vermillion, below Eugene; on Tipton branch, south of Eugene; along the Little Vermillion, as just stated; and in the bluffs east of Highland. At the latter place the face of the quarry, twenty feet thick, shows well as viewed from the river. Among the shaly sandstones just below the quarry rock we frequently meet with large, thin flagstones, often showing ripple-marks. At all the quarries we find the stone, containing more or less plant remains, of the genera *Lepidodendron*, *Sigillaria*, *Syringodendron*, *Calamites*, *Cordaites*, etc.

From the upper beds of the Millstone grit small quantities of rock have been quarried, between Perryville and Covington. Some of these contain sufficient mica to make it probable that they will prove suitable for furnace hearths. When furnaces shall be established in the county, it will be worth while to test these fairly before going further for hearthstone. Some portions of the Hanging Rock sandstone also appear suitable for this use.

In the section at Nebeker's coal-bank, north of Clinton, a band of sandstone, marked as a "firestone" in the section given, has been used in fireplaces in sugar camps in the neighborhood, and found to stand well.

The limestone at Perrysville is not suited for building purposes, since its argillaceous character renders it peculiarly liable to be broken up by the frost, as is plainly shown along its outcrop. It would make a valuable lime for agricultural purposes. Another thick seam of limestone is the one described as existing on Fall branch, just below the Horseshoe of the Little Vermillion, which appears to be a pretty solid rock; but its position and thinness prevent its being of much practical value. Still another occurs above coal No. 7, above the Horseshoe, and the same remarks will apply equally well to this as to the previous one. At two or three points, as at Perrysville, lime was formerly burnt for masons' use, but the stone used was found loose in the wash of the "boulder clay." The lime now used in this county is entirely imported.

Of black bituminous calcareous shales, such as have been much used for "patent roofing," there seems to be no limit to the amount, occurring, as they do, constantly above No. 3, generally above "No. 4," abundantly covering "No. 5," forming a considerable part of the roof of No. 6, and the roof of "No. 8," so far as seen.

I cannot conclude the report of the survey of this county without returning my hearty thanks to the many citizens thereof who have, in all cases when called upon, rendered most efficient assistance; but these are especially due to William Gibson, Esq., of Perrysville, for guidance and repeated assistance in my attempts to ascertain the truth regarding the distribution of the rocks in that part of the county, and, above all, to John Collett, Esq., of Eugene, to whose frequent hospitality and constant assistance I have been greatly indebted, from the day on which I first entered the county until the present time, his letters having followed me up, and supplied the occasional "missing links" always to be sought for in completing the report of such work.

GEOLOGY OF FRANKLIN COUNTY.

DR. RUFUS HAYMOND'S REPORT OF A GEOLOGICAL SURVEY OF FRANKLIN COUNTY, INDIANA, MADE DURING THE SUMMER AND FALL OF 1869.

To Professor E. T. Cox, State Geologist:

SIR—In your letter, dated May 26, 1869, you suggest the following plan of survey and report upon the geology, etc., of Franklin county:

"1. Boundary of county, surface, configuration, streams, etc.

"2. Geological formations and descriptive geology, economical geology, ores, building stone, and all minerals of use.

"3. Timber and agriculture."

These instructions I have endeavored to carry out, and herewith respectfully submit for your consideration the following report:

PHYSICAL GEOGRAPHY.

Franklin county is bounded on the east by the State of Ohio; on the south, by Dearborn and Ripley counties; on the west, by Decatur and Rush counties; and on the north, by Fayette and Union. It contains about four hundred square miles. At least half the county is very much broken up into ridges and hills, separated by deep ravines and valleys of denudation, usually narrow upon the smaller streams, but occasionally spreading out to half a mile in width.

The principal rivers are, the main White Water and its two branches, the East and West Forks, which unite at Brookville, the county seat, in latitude 39° 28′ north, longitude 85° 05′ west—approximately.

The valley of the main river will average rather more than a mile in width, bounded throughout its whole course by beautiful sloping hills, ridges, promontories and rounded eminences, in many cases covered with forest trees and shrubbery, presenting a scene of unusual beauty throughout its whole course in the county.

The principal tributaries of the West Fork are Pipe creek, Salt creek, Sein creek, Garrison creek and Duck creek, all in the western part of the county. Pipe creek is about fifteen miles in length, and heads in Ripley county; Salt creek is probably twenty miles long, and heads in Decatur. The other streams are small.

The tributaries of the East Fork, within the bounds of the county are two—Templetons creek and Wolf creek—both small and unimportant streams.

The principal branches of the main river are Big Cedar, Little Cedar and Blue creek.

Several of these streams furnish a considerable amount of water in their upper course, but usually become entirely dry near their mouths in the latter part of summer, the water disappearing among the gravel and sand.

I am informed by Hon. John H. Farquhar, who was formerly engaged as an engineer upon the White Water Canal, that the amount of water furnished by the river at a medium stage was, for the East Fork 2,700, and for the West Fork 4,300 cubic feet per minute. The river, at the time the canal was constructed, afforded considerably more water than at present.

White Water is a very rapid stream, having, upon the average, a fall of six feet to the mile, from Hagerstown, in Wayne county, to Elizabethtown, in the State of Ohio. Of the amount of water power it is capable of furnishing, something may be said hereafter.

GENERAL GEOLOGY.

The greater number of rocks within the county belong to the lower Silurian system, the balance to the upper Silurian and Devonian formations. These rocks have evidently been "deposited at the bottom of a deep primitive ocean," and consist of alternate layers of semi-crystaline rocks and other sedimentary deposits, mostly in thin strata, varying from an inch to twelve or fifteen in thickness. These subcrystaline rocks are mostly composed of carbonate of lime, divided by beds of indurated bluish or gray clay, regularly stratified and divided by cleavage planes. This clay, properly a clay marl, contains a large amount of lime, and effervesces freely with sulphuric acid; upon exposure to the air, it slowly decomposes and crumbles to dust. The rocks contain millions of marine fossils, in great variety, many of them being a mass of shells cemented together with lime.

BLUE LIMESTONE REGION.

The blue limestone is the lowest rock which has been exposed at the bottoms of our streams. It underlies the whole region, and is the only rock found in the southeastern third of the county, except hypozoic boulders, which are found in all situations, from the highest to the lowest grounds.

This limestone, with its accompanying marls, is about four hundred feet thick in the southeastern part of the county, and three hundred and fifteen at Brookville, a mile and a half north of which it disappears, under a drab colored limestone, which is from six to twenty-two inches in thickness—the blue belonging to the lower Silurian, and the drab to the upper Silurian group.

In the blue limestone the following fossils were found, that are referable to the Trenton Period:

Petraia corniculum, *Columnaria alveolata*, *Chætetes lycoperdon*, *Asaphus gigas*, *Calymene senaria*, *Orthis Lynx*, *O. occidentalis*, *O. testudinaria*, *Strophomena rugosa*, *Leptæna sericea*, *Rhynchonella increbescense*, *Pleurotomaria lenticularis*, *Murchisonia bicincta*, *M. bellacincta*, *Bellerophon bilo-*

batus, *Endoceras proteiformes*, *Cyrtoceras annulatum;* and to the Hudson Period: *Ambonychia bellastriata.*

In the buff colored stone, which is dolomitic, I found the *Calymene Blumenbachii*, which leads me to infer that it belongs to the Niagara Period.

The surface of the county was originally almost a level plain, which is now varied and cut up by the valleys which the streams have worn for themselves during past ages. Beyond the heads of the streams, where the table land has not been changed by running water, the highest land is so flat as almost to deserve the name of marsh or swamp; yet these flats are not so wet as to prevent the growth of forest trees. Thus it will be apparent that we really have no such thing as hills or mountains, yet, to a person in the valleys or ravines, the rapid slopes, ridges and spurs, give every appearance of his being in a hilly country. Such is the appearance along the valley of White Water and its tributaries. When, therefore, the term hill is used in this report, I wish it to be understood as applicable to the slopes bordering the valleys, and not to hills, properly so called.

The blue limestone, so far as I have observed it in Franklin and neighboring counties, is found in strata varying from less than an inch to twelve or fourteen in thickness. These layers seem to the eye to be nearly horizontal, and occasionally can be traced for half a mile, the inclination only becoming apparent when the out-crop is found bordering streams which run parallel to the dip. I have found it impossible to satisfy myself as to the *exact* amount of inclination. The dip of the blue limestone rocks is to the southeast, at the rate of four feet to the mile, according to the best estimate I can make, after having examined them from the southeastern to northwestern angle of the county. One great difficulty in making a correct estimate of the dip, is the fact that the layers occasionally run out, and are replaced by other strata slightly different, or by the blue marl, so that the identification becomes difficult, and often impossible; all are, however, geologically identical.

The several strata are separated by the blue marl, which varies from a few inches to one or two feet in thickness. The proportion of stone to the clay varies in different localities, but the stone in Franklin county I think preponderates over the clay marls. The rocks are all divided by vertical fissures into irregular fragments, from twelve inches or less to eight or ten feet in diameter.

There are, however, a few strata in the hills of a smooth, very hard fissile stone, which is often divided into rhomboidal forms—one set of vertical fissures running from southeast to northwest, the other from west of south to a little east of north. This fragmentary arrangement of the rocks accounts for the rounded contour of the hills, points and ridges. When by floods or other causes the rock becomes exposed, the marl crumbles to pieces by the action of the atmosphere; the strata fall successively, and slide down with the unctuous mud, and are never left standing out in mural cliffs, or producing cascades, as is the case with the "cliff limestone," of which I shall speak hereafter.

It is a curious fact that, notwithstanding the immense number of rocks, from the lowest point we can observe to near the tops of the highest levels, comparatively few loose stones are found at the surface. The hills and slopes of the valleys are covered with clay and other diluvial matter, in all respects identical with that found upon the uplands; and strangely enough, though so near the lime rock, the soil of the hillsides, as is the case in all the uplands and flats, seems to be devoid of lime—a fact scarcely credible when we consider the immense amount of this mineral immediately below the surface. If lime ever existed in any quantity in our upland soils (which is doubtful), it has been *leached* out during the lapse of ages by the constant percolation of water, charged with destructive chemical agents, ever since their deposition. The probability is that those lands which are deficient in lime, would be benefitted by the application of the marls found everywhere between the rocks—and that those which have been exhausted by cultivation might, by a proper application of lime and manures, be restored to their original fertility.

The blue clay or marl found between the strata of blue limestone, it was said, by Dr. Locke, contains thirty-five or forty per cent of lime. It effervesces as freely with acids as the rock itself.

These marl strata generally contain no fossils. There are, however, exceptions to this rule in those found near the summit of the hills. During their deposition, animal life, in many instances, seems to have ceased, to be renewed again in the next succeeding stratum, which abounds, as do most others, with marine shells, nearly all as perfect as during the lifetime of the animal; and in almost every rock the great mass of shells show all their convex surfaces upon one side, and the concave surface upon the other. Occasionally stones are found composed almost wholly of shells standing perpendicular to the surface, and fitting into each other as though they had been so placed by design.

I have found it impossible to determine the number of strata with absolute certainty which our valley slopes contain, for in no place is there more than fifty feet in perpendicular height exposed, except at a cut through a ridge two miles west of Brookville, made in the construction of the White Water Valley railroad, which is about eighty feet in depth. In this cut I have counted about one hundred strata, varying from half an inch in thickness to one foot. From the lowest outcrop at Brookville to the point where the blue limestone disappears beneath another formation, it is three hundred and fifteen feet, which at the rate of one hundred for eighty, would give for the whole elevation upwards of three hundred and ninety strata, which I think may be relied on as nearly correct—if any difference, rather under than above the true number.

The blue limestone is very valuable, being a good building stone, good for burning into quicklime, and for McAdamizing roads. Every rock which has sufficient firmness to bear hammer-dressing, makes a good and durable building material. When free from cavities, much of it is susceptible of a very high polish. By Dr. Locke's analysis of the same character of rock, made some years ago, he found it to contain 90.93 per cent of carbonate of lime, a trace of iron, magnesia, etc.

In consequence of the fact that this rock is always broken up into fragments, and the layers separated by unctuous blue clay marl, which decomposes and crumbles to pieces upon exposure to the atmosphere, thereby causing the fragments to fall, as I have before stated, there are no cliffs. But in the ravines, where the loose stones and other *debris* have been washed away by floods so as to clearly expose the rocks, they are found overlapping each other like shingles upon the roof of a house. The only exception to this arrangement is at their junction with the lowest member of the Upper Silurian group, which is a rock of superior thickness to any of the blue stones, and longer resists the action of air and water. Where this rock crosses the ravines, having small running streams, cascades are formed from six to twelve or fifteen feet in height.

UPPER SILURIAN.

Two miles north of Brookville, upon a ridge running north and south, and at a height of three hundred and fifteen feet above low water mark at the river, there is the first outcrop of a rock of very different appearance from any below it. Externally, it is of a drab or cream color for one-third of its thickness, both upon the upper and lower surfaces, the center third being of a pale blue color. This is the character of those near the surface. After the rock has been stripped below all atmospheric influences, it is entirely blue. This is a hard, compact limestone, which "spawls" with conchoidal fracture, and probably contains magnesia. It is sufficiently hard to work well to sharp edges. It contains but very few fossils. This rock is used extensively for building purposes, and mostly bids fair to be sufficiently durable.

In most situations where it is found, there are above it several strata of nodular bituminous limestone, in the aggregate occupying a space of from five to ten feet in perpendicular altitude. The strata are separated by beds of yellow clay. This clay abounds in fossils, and in some situations above the bituminous layers, are vast numbers of bivalve shells and *cyathophylla*, the latter in greater numbers than I have ever observed them elsewhere. Specimens of these fossils will be forwarded to you, marked as occurring above these rocks, as well as those from the rocks immediately below.

This rock appears near the surface on the farm of Dr. Peck, four and a half miles northeast of Brookville, and is there three hundred and fifty-two feet below the level of the river; a mile and a half west of Peck's we find it on the farm of Josiah Allen, at a height of three hundred and twenty-four feet; two miles west of Allen's, at H. H. Schrichte's quarry, it is found to be three hundred and fifteen feet in height, showing a westward dip of nearly five feet to the mile. Six miles west of Schrichte's quarry, on the farm of C. T. Gordon, we again find it at an elevation of two hundred and ninety-seven feet; and a mile and a half farther west, on the farm of M. C. Gordon, it is found at the height of two hundred and fifty-two feet—a descent of forty-five feet, or thirty feet to the mile.

The dip of this formation is almost exactly opposite to that of the blue limestone strata, and for ten miles nearly at the same rate of inclination. From Gordon's farm the descent is much greater.

In all situations I have found this rock near the tops of the hills, with little above it except the nodular limestone, and with the further exception, that west of the West Fork, in Laurel township, it dips down and under thirty or forty feet of thin limestone strata, similar in most respects to blue limestone, which underlies it at other places, except that here they are *comparatively* devoid of fossils. Immediately upon this formation, two miles west of Laurel, and near the northwestern part of the county, we find the rock, called by the older Ohio geologists "Cliff limestone." It belongs partly to the Niagara epoch of the Silurian period, and the upper members probably to the Devonian.

Heretofore it seems to have been the opinion of our geologists that this formation was wanting in Franklin county—and indeed I was not aware myself that it existed here until I examined that section of the county. I find it very near the Fayette county line; but whether it is to be found north of that line, I am at present not prepared to say. It is confined to a belt of country about two and a half miles wide, beginning near the north line of the county, partly in Laurel and partly in Posey townships, and running south, probably into Ripley and Jefferson counties.

The lower member of this "Cliff-rock," as it appears in most places, is exceedingly rough, irregularly stratified in layers usually three or four inches thick, divided by vertical seams, which, upon exposure to the atmosphere, open, and the rock splits up into small angular fragments; this is particularly the case in the central parts of the cliff, leaving the upper and firmer parts of the rock overhanging like a projecting roof. The limestone of these cliffs is regularly interstratified with hornstone or chert.

The cliffs vary in height from ten to twenty-four feet, the latter being the highest I have measured.

Immediately upon this formation we find our best building stone, one or two being cream-colored; the latter are very hard, and contain silex, being what is termed "cherty limestone." Some of these courses make as fine flagging as can be found anywhere, and can be quarried of any desired dimensions. They are rough upon both surfaces, being full of protuberances and indentations, the protuberances of each fitting into the indentations of those above and below, there being no clay or other substance between them. The layers, though fitting very closely, in most cases are easily separated. As they lie in the quarry, they present the appearance of regular range-work, having a perpendicular face with narrow seams, which are as straight and true as a mason could put them up.

The district in which this formation is found being so narrow, I have not been able to ascertain the amount or direction of the dip, or, indeed, whether it has any. All the locations in which I have found the "Cliff" rock seem to be very nearly of the same height.

About three miles southwest of Laurel, on the lands of Mr. Derbyshire, there is a miniature Niagara, a perpendicular fall of forty feet over the coarse irregular rock above mentioned. The shelving rock is in the shape of a horseshoe, the semicircle being forty or fifty yards in circuit, the rock overhanging about twenty feet. Beneath the fall there is a slaty, calcareous, crumbling rock (probably hydraulic cement rock), twenty feet thick, which, from atmospheric influences, is constantly crumbling and falling out, leaving a tolerably dry cavern. About half a mile northeast of this there is another fall, of thirty-five feet, in every respect similar to the former except in height. Above both of these falls, for some distance back, all the strata, of the same character as those taken from the neighboring quarries, have been worn away by the action of the small streams which form the cascades. During a visit to Logansport, in Cass county, the past summer, I observed a rock of the same character, and of the same geological formation, as that found at Derbyshire's falls, occupying the bed of the Wabash river, in front of that town—hence I infer that the "Cliff limestone" of Indiana has but little, if any, inclination in a northern or southern direction, for there cannot be much difference in the height of our quarries and that of the rock at Logansport. Upon Sein creek, which empties into the West fork a mile below Laurel, there are a number of cliffs varying from ten to twenty-four feet in height. In several places the rock has been precipitated into the creek in large blocks weighing many tons, and though apparently so loosely stratified, and divided by so many seams, they still retain their original firmness and show no signs of disintegration. This Niagara group, and the others mentioned above as belonging to the upper Silurian, do not altogether make more than a hundred feet in perpendicular height. The balance of the formation, if it ever existed in the neighborhood of Brookville, and I presume it did, has been worked away by some great denuding flood, evidences of which may be seen everywhere. In Schrichte's quarry, two miles north of Brookville, which occupies the top of a narrow ridge, running north and south, we find that one-half of the original formation has been worn off down to the magnesian rock, and subsequently filled up with gravel and clay very distinct from the other half with its nodular limestone and diluvial clay.

In the Sein creek cliffs on the farm of Mr. Bowers there are thirty-two strata of limestone, varying from an inch to three feet in thickness, interstratified with which there are fourteen of hornstone or chert, generally about three inches in thickness.

The Niagara Group, as well as the first rock above the blue "Cincinnati limestone," where they exist separately, are always near the tops of the hills, and are generally, though not always, covered with clay, gravel and broken limestone. The "Cliff" rock is covered with yellow ferruginous clay and fragments of hornstone.

DILUVIUM OR DRIFT.

The superficial material resting upon the rocks above described consist mostly of yellow clay, mixed more or less with small pieces of broken limestone, gravel from primitive rocks, and, in a few localities, almost pure gravel is found, in others sand, and frequently sand and gravel mixed. In no instance upon the uplands or tops of the hills do the rocks penetrate through these materials, and we find them only where the drift has been worn away by the action of the streams. The drift varies from four or five feet to forty or fifty in thickness upon the uplands. The slopes of the valleys and side-hills seem to be covered with drift similar to that upon the high grounds, but not of equal thickness. In digging wells upon the uplands the roots and bodies of trees are frequently found at various depths from ten to thirty feet; and, occasionally, limbs and leaves are found, with vegetable mould at various depths.

BOULDERS.

Boulders of granite, hornblende, greenstone, syenite, gneiss, and, in fact, of almost every species of metamorphic rock, are found all over the county, upon the highest as well as the lowest grounds. They are always found upon the surface and never beneath, except under slides or where gravel in the terraces has been washed over them. I have seen a few granite boulders that would square five or six feet; they are, however, generally much smaller, and are usually worn and rounded by attrition.

CALCAREOUS TUFA, ETC.

This deposit is found in many situations in the county, but more frequently in the gravelly terraces along the river, where the water of springs has percolated through the gravel, frequently forming large, rough, conglomerate rocks by cementing the gravel into a mass. In other places we find leaves and sticks mixed up in these formations, so perfect that we may even recognize them and determine upon what trees they grew. Around certain springs, the waters of which contain iron, ferruginous tufa is occasionally found in small quantities, containing, I apprehend, not more than five to ten per cent of metal.

TERRACES.

Upon the side-hills parallel to the course of the main river, and upon all its branches, there are benches or ancient terraces—upon the river slopes usually but two or three, but upon the smaller streams there are more. I have counted as many as ten upon a side-hill bordering Blue creek. Upon these ancient benches or beaches, we find no gravel or sand, nothing but soil, clays and rocks in *situ*. On the main river, throughout its course in the county, there are from two to four terraces composed of gravel, sand, broken limestone and small boulders of metamorphic rocks. The first terraces, or lowest bottoms, are usually not more than ten or twelve feet above the water; the highest vary from seventy to eighty feet, and are often, at the same location, found upon both sides of the river. Where the highest terraces occupy the points just above the junction of the main river and its branches, we find the lower ends composed, usually, of fine sand drifted in strata, first to the east, then to the west, as though they had been washed up by the waves and heaped upon each other as the wind changed from east to west, when the land was slowly emerging from or sinking below the surface, during the last submergence of the continent. These gravelly terraces have evidently been deposited since the valley was excavated to its present depth for they rest upon the rocks *in situ*, in some cases below the present bed of the river, and as they could only have been formed *under* water, it follows that the valley has been submerged since its excavation to at least the height of this formation.

MINERAL SPRINGS.

No mineral springs of a medicinal character are known to exist in the county, with the exception of a few which contain a small percentage of iron, with possibly a small amount of saline sulphur. If springs exist having valuable medical qualities, I have not been able to discover them. Springs, of any kind, are much fewer than we would be led to expect from the configuration of the country. I think the limited number may be accounted for by the fact that all the rock strata, as well as the marl-beds, are divided by vertical seams, which allow the water to pass through them. It is true there are in the county quite a number of springs, but they are not by any means so numerous as I have observed them in other hilly sections. The water of all our springs contains a quantity of carbonate of lime, and is therefore familiarly called "hard water."

BLUE CLAY MARL.

Everywhere between the strata of the blue limestone, there are beds of clay marl, varying from an inch to two feet in thickness. In many instances it has nearly the hardness of stone, and is regularly stratified; it effervesces as freely with sulphuric acid as the limestone above and below it, showing that it contains lime in abundance. Near the mouths of all the small tributaries of the river, and at a height equal to the gravelly terraces, there are large accumulations of marl, which has evidently been ground up or dissolved by water, which has transported it from the higher grounds to near the mouths of the streams, where its course has been checked up by the waters under which the terraces were formed. In these situations it contains some gravel and abundant angular fragments of limestone, identical with that in the surrounding hills. In some situations this marl is soft and plastic, having very much the color and consistence of putty. The marl-beds are so numerous and common all along Whitewater and its branches, that it seems unnecessary to point out particular localities.

In one locality, on the lands of Mr. H. C. Kunkle, in Laurel township, there is a bed of whitish or cream colored marl about eighteen inches thick, lying immediately upon the "Cliff," or Devonian rocks.

PALÆONTOLOGY.

Fossils in great abundance are found in almost every rock of the blue or Lower Silurian limestone.

The lowest rock which shows at the water's edge, near Brookville, is almost a mass of broken and prostrate corals, cemented together by lime. In this rock, standing perpendicular to its surface, are numerous stems of *encrinites*, which appear to have grown up through the corals after they had been broken and prostrated. Corals are found in most of the rocks, but nowhere so numerous as in this stratum, and in others found at an altitude of three hundred and twenty-five feet. The latter differ from the former in several respects, but particularly in being flat in many instances, while the former are nearly round. I send samples of both kinds.

Besides these we have—

Strophomena rugosa, in great profusion.
S. planœanvoxa, " "
S. deltoidea, " "
S. alternata, very numerous.
Orthis testudinaria, very numerous.
Orthis subquadrata, "
Orthis occidentalis, "
Orthis biferatus, Va. Lynx, "
Spirifer, not numerous.
Halysites, of Niagara group.
Favosites, of the Devonian.
Petraia, very numerous in Silurian rocks.
Maclurea, rare.
Encrinites, of several species.
Calymene Blumenbachii, and several other trilobites.
Astrea rugosa, rare.
Rhynchonella Wilsoni, rare.
Cyathophyllum turbinatum, rare.

In addition to these there are many other varieties which I am not able to identify.

IRON ORE.

Nodules of iron ore are occasionally found among the drift and gravel of the river banks, bearing evidence of having been water-worn, and doubtless were brought here with the other drift materials. The quantity is too small ever to be of any value. Pyrites, or sulphide of iron, is generally diffused among all the rocks, but in very small quantities; it is found between the layers, adhering to their surfaces, and occasionally crystals are found in the blue clay. The most beautiful specimens I have seen were found in the Niagara rock in Posey township. It has the color of gold.

LEAD.

There is a tradition that lead was once found upon a small tributary of the East fork, one mile from Brookville.

It is still the belief of some people that lead exists there, yet no man has been found who has *himself* seen the ore. The opinion is founded upon the old story, that an Indian had communicated the secret to some of the early settlers.

I have never been able to find it, and have no idea that lead will ever be found there, or indeed in any other part of the county, unless it be in very small quantities in the Devonian group.

COPPER.

A single piece of native copper has been found in the county, weighing about six pounds. It was no doubt transported with the drift from Lake Superior, as it was rounded, and bore other evidences of attrition.

GOLD.

In the northwest part of the county, in Laurel and Posey townships, upon Sein creek and its branches, gold is generally disseminated in very small particles. A common panfull of gravel and sand, when washed out, generally shows from two to three particles of gold in thin scales. None has ever been found larger than a grain of wheat. Though so generally disseminated, it is doubtful whether the quantity is sufficient to pay the expenses of washing it out. Gold has also been found upon Little Duck creek, and in other places in the county. The yellow clay in the neighborhood where gold is found, is mixed with quartz or chert, and whether the gold belongs to this formation, or has been transported in the drift, it would be difficult to say. Hornstone, in horizontal strata, is abundant in the neighborhood of the localities where the gold is ound. Gold is here, as elsewhere, found associated wita black sand.

SALT.

From forty to fifty years ago salt was made at four different places in the county. It has been so long ago that it has almost become traditional that salt was once produced here. A few of the older inhabitants, who were then very young, remember the fact, but I have yet found no one who can tell me what amount was made, or how many gallons of the water it took to make a bushel of salt. Three of the salt wells were on Salt creek, two on the farm of George and David Hawkins, section 4, township 11, range 12 east, and one on the farm of Alexander Hawkins, of the same section. The latter is the well at which the largest amount of salt was made. The fourth well was on Pipe creek, section 8, township 10, range 13 east, northeast quarter, in Butler township. These wells are all situated in the blue limestone and clay marls of the Lower Silurian group. On the hills near them is found the magnesian and bituminous nodular series, which, as I have before stated, occupy but a very few feet in perpendicular height, and belong to the Upper Silurian. It is not probable that the water of these wells is of such a character, or in quantities sufficient to render the working of them profitable.

COAL.

Many people have an idea that coal may be found in Franklin county, and it has heretofore been impossible to convince them that there is none. Next in importance to knowing what a district of country *does contain*, is a knowledge of what it *does not contain.* If I could convince those persons who believe in its existence here, that it does not belong to our formation, and that any search for it will be utterly hopeless, I should feel that some good had been accomplished.

The semi-crystalline rocks of the upper and lower Silurian system were formed in the early ages of the world's history, when there was no vegetation upon the earth, except a very few and widely separated sea-weeds. Coal is universally admitted to be of vegetable origin, and its immense quantity points to a period for its formation, when the earth was densely covered with vegetation, tropical in character, such as tree ferns, gigantic rushes, etc., similar to those now found in some parts of Central and South America. The rocks of Franklin, and adjoining counties, were deposited at a period long anterior to that in which coal was formed, and long before the earth was prepared to produce land plants, except a few, of the most insignificant character—this being the fact, it was impossible that coal could have been formed here at that early period. This should be sufficient to convince every one that it need not be sought for in this county. Fragments of black bituminous shale, which will burn feebly, are occasionally found here. This, no doubt, has been the cause of misleading people as to the existence of coal in this locality.

BUILDING MATERIALS.

Clay of a good quality for the manufacture of bricks is found in every part of the county. They are made on the uplands of the fine-grained yellow and whitish clay of first rate quality. Many are also made near Brookville, from the arenaceous loam of the river bottom lands, of very good quality, but occasionally contain fragments of lime, which slacks after exposure of the brick to the air, causing them to break, and rendering them unfit for outer walls. With care to exclude the lime, these bricks are as good, if not better, than those made from the upland clays.

Stone, known usually as the "blue Cincinnati limestone," is abundant everywhere, and is the surface-rock, as has been said elsewhere, in the southeastern third of the county. It is a valuable and very durable stone, but, unfortunately, there are but few strata, of sufficient firmness to work well, which exceed six inches in thickness. The thinner layers are used in walling cellars, and all other rough work where beauty is not essential. Many of the thicker strata are so shelly, and composed of broken corals and fossil shells, that they are not suited to ordinary stonework. Every stone which is sufficiently firm to bear hammer-dressing, may be relied upon as being sufficiently durable for any description of masonry. The thin strata are extensively used for flagging the sidewalks in the town, and have proved to be durable, and will, no doubt, outlast several successive pavements of brick.

The localities where this rock is found are so numerous, and so generally known, that to point them out would be superfluous. North of Brookville, one mile and a half in a direct line, the rock of which we have been speaking disappears under a stratum of (probably) magnesian limestone, which varies from six to twenty inches in thickness. This stone is extensively used for heavy masonry, and range-work of various kinds; its qualities have been mentioned in a former part of this report, and need not be repeated here. It is extensively quarried by Mr. Schrichte, on the south-east quarter of section 17, town 9, range 2 west; also an the lands of Jane McCarty, sections 8 and 9; on W. W. Butler's, section 8; on the farm of W. J. Peck, sections 13 and 14; on Josiah Allen's, and James Gavin's section 15; on the lands of John Skinner, Wm. Brier, and Samuel Shepperd, section 7; William Frank's, section 18; on lands of Z. B. Reed and J. P. Shiltz, sections 17 and 18; also on the lands of C. T. Gordon, section 32; and those of M. H. Gordon, section 30, town 12 north, range 13 east. It is also found on H. H. Seal's farm, section 36, town 10, range 2 west. South of Brookville it is found on the lands of Hon. A. B. Line, J. H. Lanning and John Althero—all in section 28, town 11 north, range 13 east; also on lands of E. Krause and P. Conrad, section 17, town 10 north, range 13 east. It is found in and around the town of Oldenburg, in great abundance, section 4, town 10 north, range 12 east; also on H. Schwegmann's farm, section 1, same town.

Besides the localities already mentioned, there are many others which might be named; but to enumerate them all would render this report tedious and unnecessarily long.

The most valuable building-stone in the county, or probably in the State, is found in Laurel and Posey townships. It is of the same character, and belongs to the same formation as the Dayton stone so extensively used in Cincinnati and other places, and the same as that found at Greensburg and St. Paul. This group has generally been referred to the Niagara series, and probably correctly so, but I am of opinion that the upper strata, at least, belong to the Devonian formation. The few fossils I have been able to find in them (the upper members) are referable, in my opinion, to that group. Let this be as it may, the rocks are without doubt of great value as a building material, and when they come to be generally known will be extensively used.

Two miles north-west of Laurel, D. H. Mook owns a valuable quarry, which has been extensively worked. The strata are generally blue, especially the lower series, are hard, easily worked to a fine edge, are durable, and may be obtained of any required size or thickness. It is situated on the south-east quarter of section 5, town 12 north, range 12 east. Immediately west, in the same section, there is a fine outcrop of the same rock upon the land of Wm. Depperman; this has not been worked to the same extent as Mook's, but it contains a vast amount of valuable *material.*

On section 17, town 12 north, range 12 east, Messrs. Kemble & Payne own a quarry of very fine quality of stone. In this quarry the upper members are cream-colored cherty limestone. Stone of any desirable thickness may be obtained there.

John H. Faurot has a fine quarry on the southwest quarter of section 18, town 12, range 12; it has been but little worked. James Murphy also has a fine quarry in the same section. Thomas B. and William D. Adams, whose farm is on section 1, town 12, range 11 east, have a good quarry of the same character of stone. It is upon this farm where gold has been found in greater quantity than in any other locality in the neighborhood.

To these gentlemen, and especially to Thomas B. Adams, Esq., I am greatly indebted for assistance in prosecuting my examinations in that section of the county; and to the Rev. Wm. B. Adams my acknowledgments are due for hospitable treatment and entertainment at his residence.

Martha Plow owns a quarry in section 6, town 12, range

12, which promises well, but has not been worked to any considerable extent. J. A. Derbyshire has a fine quarry on section 20, town 12, range 12, and G. W. Kimble another in section 19.

Alfred Deter has, adjoining the village of Bulltown, in Posey township, a good quarry in section 13, town 12, range 11 east. This is the most western quarry I have seen.

One of the finest quarries in this formation belongs to Jesse Cloud, and is situate in the south-west quarter of section 7, town 12 north, range 12 east. The strata vary in thickness from two inches to ten. The thin flags are yellow, very hard, and upon being struck with a hammer give out a clear sharp ring, similar to glass; they are very durable, notwithstanding their argillaceous character.

Flagging, or stone for any other purpose, may be obtained here, or at any of the neighboring quarries, of uniform thickness and of any dimensions.

Besides these quarries there are a number of others in the vicinity which might be mentioned, but I deem it unnecessary to name them all, as they may be found in a belt two and a half miles in width by five or six in length.

TIMBER.

Franklin county was originally covered with a magnificent forest, comprising most of the hard timber trees common to the latitude. A little more than one-half of all the lands have been cleared, and are now under cultivation; and in the remaining half a large amount of the best timber has been sawed into lumber or made into staves, so that good timber in the county is *comparatively* scarce, and is becoming more so every day.

The principal timber trees are:

White oak (*Quercus alba*). This is, and always was, the most abundant tree in the county.

Burr oak (*Quercus macrocarpa*). Found in various parts of the county, but nowhere abundant.

Chestnut oak (*Quercus Castanea*). Two miles north of Brookville, upon a poor point, there is a grove of about thirty chestnut-oak trees. These are all I have ever seen in Southeastern Indiana.

Red oak (*Quercus rubra*). Very common.

Black oak (*Quercus tinctoria*). Common upon the hills.

Red beech (*Fagus ferruginea*)), and white beech (*Fagus Sylvestris*). The most numerous of all trees except white oak.

Shellbark hickory (*Carya alba*). Very abundant.

Thick shellbark (*Carya sulcata*). Quite common.

Pig-nut hickory (*Carya glabra*). Common.

White ash (*Fraxinum Americana*). A very common and valuable timber tree.

Blue ash (*Fraxinum quadrangulata*). Rather abundant, and the most valuable of all ash timber.

Hoop ash (*Celtis Mississippiensis*), and hackberry (*Celtis occidentalis*). Quite common, the latter tree the most numerous.

Sycamore (*Platanus occidentalis*). Plentiful along the borders of all our streams.

Butternut (*Juglans Cinerea*). Quite common.

Poplar (*Liriodendron tulipifera*). Once very abundant, now becoming scarce.

Black walnut (*Juglans nigra*). Formerly abundant, but now becoming scarce.

Sugar maple (*Acer saccharinum*). Abundant.

White maple (*Acer dasycarpum*). Common.

Red or swamp maple (*Acer rubrum*). Common.

Wild cherry (*Cerasus Virginiana*). Not abundant

Sweet gum (*Liquidamber Styraciflua*). Common in the southern part of the county; occasionally found in northeast part.

Cottonwood (*Populus angulata*). Quite common along our streams.

Linden-basswood (*Tilia Americana*). Very common.

Buckeye (*Æscules glabra*). Very abundant.

Coffee-nut (*Gymnocladus Canadensis*). Not very abundant.

Honey locust (*Gleditschia triacanthos*). Quite common

Gum (*Nyssa uniflora*). Common.

Slippery elm (*Ulmus fulva*). Common.

White elm (*Ulmus Americana*). Abundant.

Mulberry (*Morus rubra*). Rather abundant.

Red cedar (*Juniperus Virginiana*). A few small groves in the county.

In addition to the timber trees above named there are many smaller varieties, but as they are seldom used for building or mechanical purposes I have thought it unnecessary to name them.

WATER-POWER.

Our streams do not furnish, upon the average, more than one-third the amount of water they did thirty or forty years ago. There were then many water-mills upon the small tributaries of Whitewater that are now abandoned on account of the failure of water. This failure is caused by the destruction of the forests, and by draining the flat uplands. Whilst the surface was covered with trees, brush and leaves, the water, after rains, was prevented from flowing rapidly into the streams, so that the rises were gradual, but since the side-hills have been cleared and set in grass, and the level lands drained, the water rushes rapidly into the streams, causing great floods, which wash the banks, overflow many of the bottoms, and as quickly subside, leaving a deficiency of water as compared with former years. These floods have greatly marred the beauty of the river by washing away the banks, and leaving great accumulations of gravel and sand in its widened bed. Formerly the stream was bordered by trees, and the water was so transparent in the fall and winter that the bottom could be seen at a depth of twenty feet. It is still a very clear stream, but by no means equal to what it was formerly. The fall upon the average is six feet to the mile—some places more, some less—but everywhere ample power may be had to propel almost any amount of machinery.

The Whitewate canal, now abandoned for purposes of navigation, is still used for hydraulic purposes, and furnishes a very large amount of valuable water-power which is used to some extent, but there are still a number of locks unoccupied which are capable of furnishing almost any necessary amount of power.

ANCIENT EARTH-WORKS.

There are few earth-works, except mounds, found in this county. Three miles north of Brookville, and immediately west of the East fork, upon the top of a hill near three hundred and fifty feet high, there is a semicircular wall of earth three hundred yards in length. It is built across a narrow ridge which is formed by two deep ravines, one on the south, the other on the north, which, with the river on the east, isolate the flat on top of the hill (containing fifteen or twenty acres,) from the level country to the west, and was built, probably, to protect the inhabitants from any enemy approaching from that direction.

There are quite a number of earthen mounds in the county, but none of large size; I have seen none more than ten or twelve feet high; many of them are not above three or four feet in height. Those on the highlands bordering the river are uniformly upon the highest places, and always in view of the river and its valley.

These mounds are so situated with reference to each other that a person standing on a mound in the most northern part of the county, overlooking the valley of the river, could see the next mound below him, and from the second the third was in view, and so with all the others, thus forming a chain of observatories, from which the approach of an enemy could be telegraphed with great celerity from one to the other, either by smoke or some other intelligible signal. Though these mounds were used as burial places, I have no doubt they were also used as signal posts; and very probably the signals were made by fire, for the clay of which they are composed in some cases has been burned to near the color of common brick.

The Mound Builders were a people posssessing rare good taste, which is evidenced by the situation of their mounds.

These were always built in picturesque positions—either on the highest grounds, or, if in the valleys, upon the edges of the highest river terraces, overlooking the water and the lower portions of the valley.

Two miles below Brookville, upon the farm of Mr. Roberts, there are, within the distance of two furlongs, upon the edge of the highest river terrace, nine small mounds. Besides these nine, which appear to have been completed, there is one barely commenced and abandoned. The commencement was made by digging up the earth to the depth of about twelve inches, which was then thrown out from the center and heaped up around the circumference, forming a circle within which the superstructure was to be erected, and which has very much the appearance of a shallow basin. It was in these basins that the dead were burned, or rather partly burned, for they were not usually entirely consumed. Not many mounds in this neighborhood have been thoroughly explored; and, in such as have, few contain anything more than bones and charcoal. In two of them bracelets of copper were found, and, in some others, a pipe or two; one of these, found in a mound eight miles below Brookville, was said, by those who found it, still to have retained the scent of tobacco; if this be true, it conclusively proves that these people used tobacco as well as their successors, the modern Indians. There are upon many of the high points mounds of stone, which have been erected by a different people from the Mound Builders. These contain vast quantities of human bones, both of adults and children, as well as the bones of squirrels, skunks, and other small animals. These were not probably the burial places for the dead, but a collection of their bones brought together from many places for final sepulture.

FOSSIL BONES OF MASTODON, &C.

Parts of skeletons of three mastodons (*mastodon maximus*) have been exhumed in the neighborhood of Brookville; one of them about a mile below, and the other three and a half miles; both found among the gravel in the upper river terrace, some eight or nine feet below the surface. This conclusively proves that these animals existed previously, if not at the time, of the formation of the terraces. They were most probably destroyed by the flood which transported the drift. The third skeleton was found three and a half miles north-east of Brookville, on the farm of Mr. David Barnard, in a piece of marshy ground which he was ditching. A tooth or two, and some other bones or the mammoth (*Elephas primigenius*) were found some years ago in Saltcreek township; one of the grinders, which I once had in my possession, was thirteen inches wide, six inches deep, and four inches thick, and weighed, when found, fourteen pounds, but after being thoroughly dried weighed but eleven. Only about half the tooth had been used in mastication, the balance not having, at the death of the animal, appeared above the integuments of the jaw.

SOIL AND AGRICULTURE.

There is considerable variety in the soil of Franklin county. The Whitewater bottoms are, or at least once were, as productive lands as could be found anywhere; they contain a large per cent. of vegetable matter, or humus, with clay, sand and lime—in fact all the elements of fertility. Some of these lands have produced pretty fair crops of corn for fifty successive years without the use of any kind of manures. This constant cropping in corn, however, is perceptibly exhausting them, and points out the necessity of a rotation in crops, and the application of fertilizers, if we expect them to maintain their fertility.

Forty years ago wheat could not be profitably produced in the alluvial bottoms on account of the great amount of vegetable matter which the soil contained. This has to a considerable extent been exhausted by the growing of corn and these lands now produce good crops of wheat. In the eastern part of the county, Bath, Springfield, and Whitewater townships, there is a large amount of level and very productive land. Many parts of this section were formerly considered to be of little value on account of their swampy character, but, since they have been cleared and drained, they are considered, taken all in all, to be the most desirable lands we have. The soil is largely composed of vegetable matter with a subsoil of yellow clay.

I will forward a specimen of the soil from Springfield township, which will give you an idea of the character of the soil in that section. Lands there range from forty to eighty dollars per acre.

In Blooming Grove township the soil is gray, and in many cases nearly white, with a yellow argillaceous subsoil found at about fifteen inches below the surface. This clay, when brought up and mixed with the superficial soil greatly enhances its productiveness. I have no doubt that if these lands could be subsoiled, and this clay mixed with the soil, the result would be a great improvement in their productiveness.

In the southern part of the county the soil is also grayish, with a subsoil of arenaceous yellow clay. This soil is not so productive as that in some other parts of the county, but produces fine apples, peaches, and other fruits. In the western part of the county, the soil is gray, with a subsoil of ferruginous-colored clay. This clay abounds in fragments of hornstone. The soil is more productive than its appearance would lead us to expect.

In the surface diluvial soils I have been unable anywhere to find even a trace of lime. None of them effervesce in the slightest degree with acids. If they ever contained lime (which will admit of doubt), it has been *leached* out by the constant percolation of water during past ages. I have found it a hard matter to convince our farmers that their lands contain no lime, and in many cases have entirely failed to do so.

I have no doubt that lime could be beneficially applied to these lands, provided the precaution be taken at the same time to apply manure, muck, or to plow in a crop of green clover.

Our farmers are generally well situated, but little in debt; most of them have good houses, and many even

FAMILY MUSTELIDÆ—WEASEL FAMILY—GENUS PUTORIUS.

Putorius noveboracensis—Common Weasel. The common weasel, probably the most rapacious, blood-thirsty and cruel of all carnivorous animals, is still found here, though in small numbers. When they make an attack upon the poultry or rats of a barn they continue to stay as long as anything is left with life, unless prevented by fatigue or the approach of daylight.

Putorius vison—The Common Mink.

Putorius nigrescens—Little Black Mink. These minks are both common—the former the most numerous. These animals are very destructive to poultry, and therefore very unpopular with our good housewives.

SUB-FAMILY LUTRINÆ—THE OTTERS.

Lutra Canadensis—The Otter. It is barely possible that a few of these animals still linger along White Water, though I have seen none for many years.

SUB-FAMILY MELINÆ—THE SKUNKS—GENUS MEPHITES.

Mephites mephitica—Skunk—Polecat. Of the nine species of skunk in America, we have but one; this one, however, is universally conceded to be sufficient. The skunk, notwithstanding its horrid odor, is really a pretty animal; but I apprehend will never be very popular. They are much more numerous in this region than formerly, and seem to be increasing yearly. The young kittens are very pretty little animals, and make pleasant pets, provided they are not *kept too long*.

FAMILY URSIDÆ—THE BEARS—GENUS PROCYON.

Procyon lotor—Raccoon. It is the general opinion of our people that the raccoons are as numerous as they ever were, probably more so; but as their skins are of little value, they are not hunted as much as formerly, which may account for their abundance.

GENUS URSUS.

Ursus Americanus—Black Bear. The last black bear was seen here about thirty years ago. They were once very numerous. The prints of their claws are yet plainly to be seen upon the smooth bark of hundreds of beech trees in the forests.

FAMILY DIDELPHIDÆ—THE OPOSSUM—GENUS DIDELPHIS.

Didelphis Virginiana.—Opossum. The opossum is still abundant. There are but two species of opossum in the United States; one southern, the other northern.

ORDER RODENTIA—THE GNAWERS—FAMILY SCIURIDÆ—THE SQUIRRELS—GENUS SCIURUS.

Sciurus vulpinus.—Fox Squirrel. About thirty years ago the fox squirrel made its first appearance in the neighborhood of Brookville, and has gradually increased in numbers until it has become the most numerous of the larger varieties. It will not live in dense forests, but prefers the points where there are but few trees, and the fields with scattering trees having suitable cavities in which to make their nests. These squirrels, if left unmolested, would become very tame, and probably even make their homes about our houses and barns.

Sciurus Carolinensis.—Gray Squirrel and Black Squirrel. My friend Prof. Baird, of the Smithsonian Institute, believes the gray and black squirrels to belong both to the same species. I have more respect for the opinions of Prof. Baird than any other naturalist with whom I have had communication, and his opportunities have been much greater than mine for forming a correct judgment in relation to this subject. Still I am inclined to think he is mistaken. His opinion was made up by comparing a large number of *dried* skins—mine by comparing fresh specimens of gray and black squirrels. This comparison has led me to believe that there is a difference in form between the black and gray. The black squirrel is shorter and stouter than the gray, and it has seemed to me that their ears are also shorter. Tney do not seem to be disposed to associate with the gray. Between thirty and forty years ago, there were about one-sixth of the squirrels in south-eastern Indiana black; in north-eastern Indiana nearly half of them were black. At this time there are no black squirrels to be seen in southeastern Indiana, neither has there been for several years. Occasionally gray squirrels are very abundant here; why then is it, if the gray and black be the same, that we no longer find among them the latter? Four years ago the gray squirrels migrated eastward, passing near Brookville, still I neither saw or heard of a black one.

I have always believed the black to be a much wilder squirrel than the gray—and this will account for their having abandoned the densely populated districts, while the gray still remains. It has been generally understood that the farther north a particular species of an animal is found, the lighter its color becomes; but if the *black* be a *gray* squirrel this order of nature has been reversed, for the farther north I have gone in this State the more black squirrels I have seen.

Sciurus Hudsonius. — Mountain Squirrel — Chickaree. But a single specimen of this squirrel has ever been observed in the county.

GENUS PTEROMYS.

Pteromys volucella.—Flying Squirrel. This beautiful little squirrel is very numerous—but, being nocturnal, is not often seen unless it be sought in the holes of old rotten trees and stumps, where it lies concealed during the day It is easily tamed.

GENUS TAMIAS.

Sciurus (*tamias*) *striatus*.—Ground Squirrel—Chipmunk. Very numerous all over the woods and fields; it is probably more numerous than in the early settlement of the country.

GENUS ARCTOMYS.

Arctomys monax.—Woodchuck—Ground-Hog. The ground-hog is very numerous in the Whitewater valley; the gravelly terraces, wherever covered with brushwood, they seem to prefer to all other situations. They have been accused of preying upon domestic fowls, but I apprehend unjustly.

GENUS MUS.

Mus decumanus.—Norway Rat. The brown or Norway rat is here, as elsewhere, extremely numerous. It is one of the hardiest and most energetic animals, constantly increasing in number notwithstanding the utmost exertion of all its enemies, man inclusive. They first appeared at Brookville in the summer of 1827. At that time the black rat was numerous; it was, however, but a year or two after the Norway rat appeared, until they were all gone—all eaten up by this predatory stranger.

The brown rat has been wrongly named Norway rat; they came originally from Persia to Europe, from whence they have spread to the uttermost ends of all civilized countries.

Mus rattus.—Black Rat. As above stated, these have all been destroyed by the Norway rats.

Mus musculus.—Common Mouse. The common house mouse is familiar to every one, and is common everywhere.

GENUS HESPEROMYS.

Hesperomys leucopus.—This mouse is very common in the woods. They feed upon cockle-burs, stores of which they often lay up in the deserted nest of the song-sparrow and other small birds.

GENUS ARVICOLA.

Arvicola riparius.—Meadow Mouse. Common in the fields and meadows.

GENUS FIBER.

Fiber zibethicus.—Musk Rat. Very common along the rivers, creeks and canal. It is the fur of this animal which is sold to the ladies under the name of "French Mink."

GENUS HYSTRIX.

Hystrix Hudsonius.—Porcupine. Now very rare.

FAMILY LEPORIDÆ—THE HARES—GENUS LEPUS.

Lepus sylvaticus—Gray Rabbit, or Hare. Of the twelve or thirteen species of hare in the United States, we have but a single one, the common gray rabbit, or more properly, hare, for there are no rabbits natives of America; those we have here were imported from Europe, and are domesticated.

ORDER RUMINANTIA—FAMILY CERVIDÆ—GENUS CERVUS.

Cervus Virginianus—Virginia Deer, Red Deer. Formerly very abundant, but I presume there is not now a single one living in the county.

The above list I think comprises all the Mammals now to be found in the county.

BIRDS OF FRANKLIN COUNTY, INDIANA.

FAMILY VULTURIDÆ—THE VULTURES—GENUS CATHARTES.

Cathartes Aura—Turkey Buzzard. Numerous during the warmer parts of the year; never seen in very cold weather. Two or three warm days during the winter, happening in succession, scarcely ever pass without a visit from these vultures. This is the only vulture I have ever seen in the county.

SUB-FAMILY FALCONIDÆ—THE FALCONS.

Falco columbarius— Pigeon Hawk. Occasionally seen following the flight of pigeons in their migrations; very rarely seen at other times.

Falco sparverius—The Sparrow Hawk. This beautiful little hawk is very abundant, and a constant resident.

SUB-FAMILY ACCIPITRINÆ—THE HAWKS.

Accipiter Cooperii—Cooper's Hawk. Probably the most numerous of all the hawks. They destroy more young chickens and quails than all the other hawks together. They fly with amazing rapidity, and scarcely ever miss taking their prey.

Accipiter fuscus—Sharp-shinned Hawk. These little hawks are quite common, but, like the sparrow hawk, are too small to do much mischief in the poultry-yard.

SUB-GENUS BUTES.

Buteo borealis—The Red-tailed Hawk. Very numerous here, as well as throughout the wooded districts of the western country. They prey upon domestic fowls, hares, squirrels, the tufted grouse, and quails.

Archibuteo Sancti Johannis—The Black Hawk. I have seen but two or three of these birds; these I think were not residents, but strangers.

Nauclerus furcatus—The Swallow-tailed Hawk. I have seen but a single specimen of this hawk. It is a remarkably beautiful bird, looking something like a gigantic swallow.

GENUS AQUILA.

Aquila Canadensis—The Golden Eagle. Frequently seen. More numerous in fall and winter than at other seasons.

GENUS HALIÆTUS.

Haliætus Washingtonii—The Washington Eagle. This magnificent bird has been seen along White Water almost every winter for fifty years. I have myself seen them very frequently.

Haleætus leucocephalus—The Bald Eagle. Very common in fall and winter.

PANDION.

Pandion Carolinensis—The Fish Hawk—Osprey. This beautiful eagle is often seen in the spring and fall. They do not breed here.

GENUS BUBO.

Bubo Virginianus—The Great Horned Owl. This powerful and rapacious bird is numerous, probably as much so as any other owl.

Scops Asio—The Screech Owl. This pretty little owl is abundant.

GENUS SYRNIUM.

Syrnium nebulosum—The Barred Owl. This is a very common owl in all the western country; usually most numerous in densely wooded districts, but I have seen two of them in prairies, miles from any tree.

GENUS NYCTALE.

Nyctale acadica—Saw-whet Owl. I have seen but a single specimen of this owl in the county, but have heard of others having been seen.

GENUS CONURUS—PARROT FAMILY.

Conurus Carolinensis—Parakeet—Carolina Parrot. I have seen but a single flock of these birds, in June, many years ago. There were in the first settlement of the county, were are told by the old inhabitants, very numerous.

GENUS COCCYGUS.

Coccygus Americana—Yellow-billed Cuckoo. This curious bird is very numerous, arriving late in May. Its strange hammering or pounding note may frequently be heard in the woods both day and night. These birds should be sacredly protected, because they feed principally upon the caterpillar. of which they destroy immense numbers.

FAMILY PICIDÆ—THE WOODPECKERS—GENUS CAMPEPHILIS.

Campephilus principalis—Ivory-billed Woodpecker. A former resident in the county. None have been seen for many years.

GENUS PICUS.

Picus villosus.—The Hairy Woodpecker. Resident. Very abundant. There are two or three varieties of this woodpecker, varing slightly in size.

Picus pubescens—Downy Woodpecker. Resident. This is a very abundant species. Often seen in our orchards, as well as among ornamental trees around our residences. This and the former species are erroneously called Sapsuckers. Neither of them is the bird which bores holes in the bark of living trees for the purpose of drinking the sap. The only holes they bore are made in searching for worms mostly in dead limbs or decaying wood. They should be protected as friends, and not destroyed as enemies.

GENUS SPHYRAPICUS.

Sphyropicus varius—Yellow-bellied Woodpecker. Quite numerous. Resident.

GENUS HYLATAMUS.

Hylotomus pileatus—Black Woodpecker. Resident. This large woodpecker was once numerous, but is now rarely seen.

GENUS CENTURUS.

Centurus Carolinus—Red-bellied Woodpecker. The true Sapsucker. This woodpecker is very common in spring and autumn. This is the bird which bores holes in the sugar maple, apple trees, etc., for the purpose of drinking the sap. These holes, when bored in the bark of the apple tree in October, fill up with a viscid sweet sap, which the bird collects from day to day; and so with the sugar maple, hickory, and some other trees. They are very quiet birds, and not so often seen as many other less numerous species. They have a peculiar squealing note when frequenting the orchards, which is often heard when the bird itself is not to be seen without considerable search. Resident.

GENUS MELANERPES.

Melanerpes erythrocephalus— Red-headed Woodpecker. This is the most numerous and showy of all the woodpeckers, and the most universally known. In seasons when there is no mast, acorns and beechnuts, they all migrate to warmer regions, but when there are plenty most of them remain. They lay up sufficient stores of these to support themselves during the winter. They deposit beechnuts in holes in decaying trees—the acorns they generally hull, split into two parts, and drive them into the cracks of dry trees. During the whole time they are laying up these stores, and, in fact, during the whole winter, there is constant turmoil, strife and fighting going on amongst them, caused by a universal propensity to rob their neighbors, which, of course, is resisted, hence the noise and strife everywhere heard in the woods upon the ripening of the mast. When they migrate they never return until the weather becomes settled and warm—about the first of May.

GENUS COLAPTRS.

Colaptes auratus—Flicker, Yellow-hammer, High-holder. This is a very common bird. It feeds mostly upon worms and insects, and is especially beneficial to the farmer from the millions of larvæ, etc., which it destroys during the year. A constant resident.

GENUS TROCHILUS.

Trochilus colubris—Ruby-throated Humming Bird. This beautiful little bird is very numerous. Though so small and apparently frail it arrives early in the spring—about the 10th to 15th of April. Migratory.

GENUS CHÆTURA.

Chætura pelasgia—Chimney Swallow. Migratory. This is a very numerous species. They arrive late in May, behind all other swallows, but remain some six weeks longer in the fall than the others.

GENUS ANTRASTOMUS.

Antrastomus vociferus—Whip-poor-will. This noisy bird always has been numerous here. They make no nest at all, simply laying their two eggs on a leaf or the ground. The young are beautiful, little downy creatures before the wing and tail feathers have become visible.

GENUS CHORDEILES.

Chordeiles Americanus—Night Hawk, Bull Bat. The night hawk is very numerous in the month of May, remaining some time before passing on to their usaul breeding-places farther north. A few breed here. Many persons confound this bird with the whip-poor-will. They belong to the same family, but there is a very great difference in the appearance of the two birds. On their return from the north in September, their number seems to be much greater than in the spring.

GENUS CERYLE.

Ceryle alcyon—Belted Kingfisher. Resident. The Kingfisher is very numerous along all our streams, winter and summer. This is the only kingfisher we have.

GENUS TYRANNUS.

Tyrannus Carolinensis—King Bird. Migratory. Very common; arriving late in the season, and departing early in autumn. They are the most courageous of all the smaller birds (except the Parus atricapillus), fearlessly attacking eagles, hawks, ravens and crows indiscriminately.

GENUS MYIARCHUS.

Myiarchus crinita—Great Crested Flycatcher. Very numerous; arriving about the first of May. They build their nests in hollow trees. Migratory.

GENUS SAGORNIS.

Sagornis fusca—Pewee. Migratory. This bird is familiar to every one, and is numerous; arriving usually in March, and remaining until the weather begins to get cold.

GENUS CANTOPUS.

Cantopus virens—Wood Pewee. Migratory. Very numerous; arrive about the first of May.

GENUS EMPIDONAX.

Empidonax Traillii—Traill's Fly-catcher; migratory. Rare. I have seen probably not to exceed a dozen in a residence of forty years.

Empidonax acadica—Green-crested Flycatcher; migratory. Very common in thickly wooded districts; more common among beech timber than elsewhere. Nearly always build their nests upon the lower branches of beech trees, from four to fifteen feet from the ground, in caves or near ravines, where the nest is protected from the winds. The nest is hanging, suspended from the two branches of a forked limb, very similar in form and material to the nest of the Red-eyed Flycatcher, but not so deep.

GENUS TURDUS.

Turdus mustelinus—Wood Thrush; migratory. Numerous here, and all over the wooded districts of the western country. The male and female sit by turns during incubation. Of all the thrushes, its notes are the most beautiful, clear, and full, varying through many tones impossible to describe, ending in a metallic vibratory sound, which to be appreciated must be heard.

Turdus Pallasi—Hermit Thrush; migratory. Occasionally, though rarely, seen.

Turdus fuscescens—Wilson's Thrush; migratory. Have seen a few specimens; does not breed here.

Turdus Swainsonii—Olive-backed Thrush; migratory. Have seen but a single specimen.

Turdus migratorius—Robin; semi-migratory. This is by all odds the most numerous of the thrushes. Most of them go south during the winter, but it is not uncommon to see large numbers of them during that season. In the latter part of the winter these birds occasionally roost at a given place in vast numbers, as pigeons are in the habit of doing. I have known this to be the case in two instances in the neighborhood of Brookville. Thousands of them were killed by ruthless "pot-hunters."

GENUS SIALIA.

Sialia Sialis—Blue Bird; resident. This popular and familiar bird is very abundant; seen at all seasons.

GENUS REGULUS.

Regulus Calendula—Ruby-crowned Wren; migratory. These diminutive birds are common in fall and winter.

Regulus satrapa — Golden-crested Wren; migratory. Common in fall and winter. About as numerous as the ruby-crowned wren.

GENUS MNIOTILTA.

Mniotilta varia—Black and White Creeper. Very abundant. Its note may be heard at any time in the woods during spring and early summer. They build their nests on the ground.

GENUS GEOTHLYPSIS.

Geothlypsis trichas—Have seen but a few specimens.

GENUS ICTERIA.

Icteria viridis—Yellow-chested Chat. Very common upon all brushy points where there are but few forest trees. Never found in deep wooded solitudes.

GENUS HELMINTHOPHAGA.

Helminthophaga pinus—Blue-winged Yellow Warbler. I have seen but a single bird of this species, at least that I recognized as such. Migratory.

GENUS SEIURUS.

Seiurus aurocapillus—Oven Bird, or Golden-crowned Thrush. This is a very common bird, arriving about the first of May. In passing through the woods, one is scarcely ever out of the sound of their voice. Migratory.

Seiurus noveboracensis — Water Thrush; migratory. These noisy little thrushes are heard along all the smaller streams in early spring, usually arriving in March.

GENUS DENDROICA.

Dendroica virens—Black-throated Green Warbler; migratory. Occasionally seen as they pass to and from their breeding grounds in the North.

Dendroica coronata—Yellow-rumped Warbler; migratory. Quite common.

Dendroica æstiva—Yellow Warbler; migratory. These pretty little birds are quite common, and build their nests in rose bushes and other trees and shrubs, close to our dwellings in the town.

Dendroica superciliosa—Yellow-throated Warbler. Common.

GENUS MYIODIOCTES.

Myiodioctes mitratus—Hooded Warbler; migratory. The most numerous probably of all the warblers. This bird most always attracts the attention of all who see it, from the curious contrast of intense black and deep yellow which mostly characterize its plumage. Builds its nest upon low shrubs.

GENUS LETOPHAGA.

Setophaga ruticilla—Red Start; migratory. This beautiful little bird is very numerous, and may be seen any day in warm weather, pursuing gnats and flies, in catching which they are very expert. It builds its nest, usually, in the forks of bushes from eight to fifteen feet from the ground. It arrives about the first of May, and departs in September.

GENUS PYRANGA.

Pyranga rubra—Scarlet Tanager; migratory. Arrives last of April. This beautiful bird is very numerous through all our woods. It is the only one of the genus found here. The Summer Red Bird I have never seen here.

FAMILY HIRUNDINIDÆ—THE SWALLOWS—GENUS HIRUND

Hirundo horreorum—Barn Swallow. This bird, so familiar to every one, is very numerous. It arrives early in April, and departs in the forepart of September.

Hirundo lunifrons—Cliff Swallow — Republican Swallow. This swallow has been quite numerous since the summer of 1849. During that year, for the first time, they built their nests in the county. Prior to that time, I had occasionally seen them passing through the county. They are now, probably, as numerous as any other swallow.

Hirundo bicolor—White-bellied Swallow. I have seen a few of these birds as they passed through to their breeding grounds further north. They do not breed here, but in the northern part of the State, near Warsaw, many of them build their nests. They are built in the hollows of trees and the deserted holes of the woodpecker.

GENUS COTYLE.

Cotyle riparia—Bank Swallow. Numerous along all the streams with abrupt sandy banks, into which they burrow and build their nests. They often arrive in March.

Cotyle serripennis—Rough-winged Swallow. Occasionally seen, but hard to distinguish from the former.

GENUS PROGNE.

Progne purpurea.—Purple Martin. These birds are numerous, and a great favorite with our people. I have seen them as early as the 17th of March. They generally all leave by the first week in September.

GENUS AMPELIS.

Ampelis cedrorum.—Cedar Bird, resident. These birds are common. They breed from June to September. I have seen three of their nests in the town, two in June and one in September. All three were upon shade trees on the principal business street of the town, under which people were constantly passing.

GENUS COLLYRIO.

Collyrio borealis.—Shrike—Butcher Bird. Frequently seen in autumn and winter. In 1854, I saw a Butcher bird flying with a Goldfinch, which it had just caught. Going in the direction it flew, a short time afterwards, I found it upon a small elm tree eating the bird, having suspended it in the cleft of a small split elm. The idea instantly occurred to me that the habit this bird has of sticking pieces of flesh and insects upon thorns and other sharp substances, is done as a matter of convenience, enabling them to eat at their leisure, and saving the labor of holding them with their feet, which are rather feeble, and not for the purpose of decoying other birds, as many persons have supposed. I have upon one occasion, myself, seen a Butcher bird fly to a thorn bush, and take off a piece of a bird which it had previously stuck upon one of the thorns—showing that this habit, in addition to its convenience, should be considered as one of economy, enabling it to save, for future wants, that which is not necessary for present use.

GENUS VIREO.

Vireo olivaceus.—Red-eyed Flycatcher, migratory. This bird is so numerous that a traveler through our woods, during the summer is scarcely ever out of the sound of their voices.

Vireo noveboracensis.—White-eyed Vireo. These little birds are quite common. Their nests are suspended, like those of the Red-eyed Fly-catcher, from a forked limb.

GENUS MIMUS.

Mimus polyglottus.—Mocking Bird, migratory. This celebrated songster occasionally strays this far north. I have seen two or three, and have heard the song of a few others here, within the last forty years.

Mimus Carolinensis.—Cat Bird. Migratory. The Cat bird arrives about the first of May. They are numerous all over the west. I have seen them in numbers as far north as St. Paul, Minnesota, in the month of October. It is not popular on account of the habit it has of eating the eggs and young of other small birds. They hatch as many as three broods of young occasionally, though, generally, but two during the year.

GENUS HARPORHYNCHUS.

Harporhynchus rufus.—Brown Thrush, migratory. The Brown Thrush arrives about the first of April. It is very numerous, and the best imitator of all the thrushes except he Mocking bird.

GENUS THRYOTHORUS.

Thryothorus ludovicianus.—Great Carolina Wren. Numerous, and resident throughout the year.

Thryothorus Bewickii.—Bewick's Wren. Occasionally seen. Does not breed here.

GENUS TROGLODYTES.

Troglodytes aeden.—House Wren, migratory. Have seen but two in the county. None breed here.

Troglodytes hyemalis.—Winter Wren. This beautiful little Troglodyte is very common during the winter. I have heard it sing but once—*that* song was beautiful.

GENUS CERTHIA.

Certhia Americana.—American Creeper. Occasionally seen, though not numerous.

GENUS SITTA.

Sitta Carolinensis.—White-bellied Nuthatch. This familiar bird is very numerous, and known to our citizens by the name of Tom-tit. It is a permanent resident.

Sitta Canadensis.—Red-bellied Nuthatch. This bird does not reside or breed here, but is occasionally seen late in autumn and winter.

GENUS POLIOPTILA.

Polioptila cærulea.—Blue-gray Flycatcher. This lively little bird is very little larger than a Humming-bird. It arrives early in April, and proceeds immediately to construct its nest. It chooses for its situation a smooth limb of a tree, from ten to sixty feet from the ground, not horizontal, but inclining slightly downwards; upon this it begins its nest by placing small pieces of lichens in a circle, fastening them down with fibers of spiders' web. This process it continues until the nest is of sufficient height, the whole surface being covered with small pieces of gray lichens. But the most remarkable thing in this fabric, is the fact that every piece of lichen is placed with its proper side out, just as it grew upon the tree—looking to a person not familiar with the nest very much like a lichen-covered knot.

GENUS LOPHOPHANES.

Lophophanes bicolor.—Tufted Titmouse. Very numerous, and seen at all seasons of the year. They build their nests in the hollows of trees and limbs, often in our decaying apple-trees.

GENUS PARUS.

Parus atricapillus.—Black-cap Titmouse. Very numerous, and a constant resident. They build their nests in small holes and in cavities of limbs, fence-rails, etc., if they can find such; if not, they peck out a hole in rotten stems and trees to suit themselves. The nest is always near the ground. Though so small, they are the most courageous birds I know. If you disturb their young when nearly ready to fly, they will actually dash against your hand if placed in or near the nest.

GENUS CARPODACUS.

Carpodacus purpureus—Purple Finch. Frequently seen in winter and spring. They breed in the north and winter in more temperate latitudes.

GENUS CRYSOMITRIS.

Chrysomitris tristis—Yellow Bird, Thistle Bird. Very numerous and a constant resident. Breed from June to September.

GENUS CURVIROSTRA.

Curvirostra Americana—Red Crossbill. Seen here almost every winter—feeding upon sunflower seeds and seeds of the larch.

GENUS PLECTROPHANES.

Plectrophanes nivalis—Snow Bunting. I have seen these birds occasionally during severe winters.

GENUS PASSERCULUS.

Passerculus Savanna—Savanna Sparrow. I have seen a few of these birds. Rare.

GENUS POOECETES.

Pooecetes gramineus—Bay-winged Finch. Very common in all our fields. Build their nests on the ground.

GENUS ZONOTRICHIA.

Zonotrichia leucophrys—White-crowned Sparrow. They seem to spend the winter here, and are seen until near the first of June, when they disappear, and are seen no more till fall.

Zonotrichia albicollis—White-throated Sparrow. Common in winter and spring.

GENUS JUNCO.

Junco hyemalis—Snow Bird. Very abundant from October to middle of April.

GENUS SPIZELLA.

Spizella monticola—Tree Sparrow. Very numerous in winter, keeping company with the snow birds. The habits of the two birds are very similar.

Spizella pusilla—Old-field Sparrow. Very numerous during summer in old fields, partly covered with briers, upon which they build their nests. They are similar in general appearance and size to the Social Sparrow.

Spizella socialis—Chipping Sparrow. These social birds are very numerous, appearing about the first of April, and remaining in the fall until the appearance of frost.

GENUS MELOSPIZA.

Melospiza melodia—Song Sparrow. Resident. Very numerous both winter and summer; frequently making their nests among the shrubbery of our yards, and raising two or three broods during the summer and autumn.

GENUS GUIRACA.

Guiraca ludoviciana—Rose-breasted Grosbeak. This showy and beautiful bird is frequently met with late in May and early June. I have never met with its nest, and cannot be sure that it breeds here, but, having on one occasion seen the bird in August, I am inclined to believe they occasionally do.

GENUS CYANOSPIZA.

Cyanospiza cyanea—Indigo Bird. Migratory. Quite numerous on the borders of our fields. Like to build their nest in fields upon isolated bushes, not often more than four feet from the ground. I have seen a nest on a rosebush within a foot of a front door of one of the residences in the town.

GENUS CARDINALIS.

Cardinalis Virginianus—Red Bird, Cardinal Grosbeak. The Red bird is very abundant here, as it is in all districts of the Western country. The male is a good singer, and on this account is kept in cages by many of our citizens. It is a constant resident.

GENUS PIPILO.

Pipilo erythrophthalmus—Ground Robin, Chewink. Found usually in thickets and about brush piles—keeps mostly upon the ground, and runs much more than it flies. Builds its nest upon the ground. Constant resident.

GENUS DOLICHONYX.

Dolichonyx oryzivorus—Bobolink, Reed Bird, Ortolan. I have occasionally seen this bird in our grassy fields in the last of May and first of June. They occasionally stay a week or two, but never breed here to my knowledge.

GENUS MOLOTHRUS.

Molothrus pecoris— Cow Black Bird, Cow, Bunting. This is a very numerous species—seen at all seasons of the year. It never builds a nest of its own, but lays all its eggs in the nests of other and smaller birds than itself. They lay but one in each nest. I have frequently found their eggs in the nests of the red-eyed flycatch, indigo blue-bird, blue-gray gnatcatcher, redstart, etc. When this egg hatches, the young bird, being larger than the legitimate nestlings, it crowds all the latter out of the nest, and remains the sole occupant, and is reared with labor by its foster parents. As soon as it becomes fully grown it joins the first flock of its kindred it meets with. These birds during the latter part of summer are found following the cows as they feed along in the pastures, keeping close to their heads, usually some on each side, and moving as they move. It is not certainly known why they do this, but most probably they do it for the purpose of catching such insects as the cow may scare up in her progress.

GENUS AGELAIUS.

Agelaius Phoeniceus—Swamp Blackbird. These blackbirds are common about marshy grounds, but, from the scarcity of swamps in the county, they are few in comparison to the vast numbers found in the northern part of the State. A few make their nests here.

GENUS STURNELLA.

Sturnella magna.—Meadow Lark. Resident. This starling is abundant in all our meadows. Its nest is built upon the ground.

GENUS ICTERUS.

Icterus spurius.—Orchard Oriole. Migratory. This very noisy bird is numerous. Arrives about the first of May.

Icterus Baltimore.—Baltimore Oriole. Migratory. Quite numerous; arriving during the first week of May. It breeds here, building a pendulous nest, which it hangs from the drooping ends of long branches of trees, as far from the body of the tree as possible, with a view of protecting the nest from climbing enemys.

GENUS QUISCALUS.

Quiscalus versicolor.—Crow Blackbird. Very abundant, arriving in March, and building their nests in April and May. After rearing their young, they proceed north about the first of August, and return, going south in the month of October.

GENUS CORVUS.

Corvus carnivorus.—American Raven. The raven was once numerous in this section, yet now so rare that I have seen but one during the past twenty years.

Corvus Americanus.—Common Crow. Rather numerous at all seasons of the year except in extreme cold weather, when they are seldom seen. A few days of warm weather in the winter seldom pass without the crows making their appearance.

GENUS CYANUVUS.

Cyanura cristata.—Bluejay. The bluejay is the dandy of the corvidæ family, and seems disposed to show himself on all occasions to the best advantage. For many years they were in the habit of building their nests in the ornamental and fruit trees of the town; but they are not very popular neighbors, for, like the cat-bird, they rob the nests of the social sparrow and other small and helpless birds.

GENUS ECTOPISTES.

Ectopistes migratoria.—Wild Pigeon. Still seen in large numbers, though evidently they have been constantly diminishing in numbers for the last forty years, and are probably not half so numerous as they formerly were.

In the months of January and February, 1854, these birds roosted about two miles from Brookville, notwithstanding the country is thickly inhabited. No one who did not see them, or who has not seen a "pigeon roost," can form any adequate conception of their numbers.

GENUS ZENAIDURA.

Zenaidura Carolinensis.—Turtle Dove. Very abundant. A constant resident throughout the year.

GENUS MELEAGRIS.

Meleagris gallopavo.—Wild Turkey. I can remember when wild turkeys were very numerous, but it is doubtful whether at this time there is even a solitary individual left. This is not the bird from which the stock of our tame turkeys originated. Our species cannot be domesticated. It has often been tried, but finally they all wander off and become wild. The wild turkey has no wattle under its chin and throat as the tame species have, neither do they have any white feathers. The domestic turkey originated most probably in Mexico or some of the West India islands, where there are wild turkeys marked with white.

FAMILY TETRAONIDÆ—THE GROUSE—GENUS BONASA.

Bonasa umbellus.—Ruffed Grouse: Partridge: Pheasant. This beautiful grouse, once so numerous, is becoming rare. There are still a few of them lingering among the brush of our uncultivated hillsides. The curious drumming noise which this bird is in the habit of making during the breeding season in the spring, and upon warm days in the latter part of October and first of November, is familiar to all who live near its haunts; but the manner in which this sound is produced seems to have escaped the observation of nearly every one. Even the great Audubon, whose observations were usually so correct, was mistaken as to the manner of its production. He says it "beats its sides with its wings, in the manner of the domestic cock, but more loudly, and with such rapidity of motion, after a few of the first strokes, as to cause a tremor in the air not unlike the rumbling of distant thunder." This is well told, and true, with the single exception that the bird in drumming does *not* beat its sides.

The drumming is produced thus: The pheasant, standing upon the trunk of a prostrate tree, usually surrounded by brushwood, erects his body to its full hight, and produces the drumming sound by striking the *convex surfaces* of his *outstretched wings together behind his back*, just as we often see boys swinging their outstretched arms behind them, so as to make the backs of their hands meet behind and opposite the spine. This is the truth of the matter. Audubons' idea that the pheasant could produce a louder noise than the domestic cock, nearly four times his size, by beating its small compact body with its wings, is, to say the least, a curious mistake. The *hollow rumbling* sound could *not* be produced in this manner.

GENUS ORTYX.

Ortyx Virginianus.—Quail—Bob White. The quail is still rather common, but not so numerous as formerly. In addition to its other enemies, the red fox has recently made its appearance in this county, and probably destroys more of them than all the others.

FAMILY GRUIDÆ—THE CRANES—GENUS GRUS.

Grus Canadensis—Sand-hill Crane.—I have never seen but three sandhill cranes in the county. They are very numerous in the northwestern part of the State. The white or great whooping crane is seen there also occasionally.

FAMILY ARDEIDÆ—THE HERONS—GENUS GARZETTA.

Garzetta candidissima.—Snowy Heron. Frequently seen along Whitewater in August and September.

GENUS ARDEA.

Ardea Herodias—Great Blue Heron or Crane. Very frequently seen—occasionally even in winter.

GENUS ARDETTA.

Ardetta exilis—I have never seen but two of these beautiful little bitterns in the county.

GENUS BOTAURUS.

Botaurus lentiginosus—Bittern—Stake-driver. This bittern is rare here—have seen three individuals. In the northwestern part of the State they are quite numerous. Some of the people there call them *Thunder-pumpers.*

GENUS BUTORIDES.

Butorides virescens—Green Heron—Fly-up-the-Creek. This is by far the most numerous of the heron family. They breed here.

GENUS NYCTIARDEA.

Nyctiardea Gardeni—Night Heron. I have seen two of these herons only. They are rare.

GENUS TANTALUS.

Tantalus loculator—Wood Ibis. These large and curious birds occasionally visit the Whitewater valley in the month of August. Some years ago I kept one (which had a broken wing) about six weeks. In that time it became very tame, learned its name, and would come when called. We fed it upon living fish, which it would swallow with amazing rapidity, except catfish, which required labor and time to dispose of. It died from having eaten a mackerel which had been placed in a basin to soak.

GENUS CHARADRIUS.

Charadrius Virginicus—Golden Plover. Have occasionally seen this plover.

GENUS ÆGIALITIS.

Ægialitis vociferus—Killdeer. This noisy plover is very numerous, and a constant resident throughout the year.

GENUS STREPSILAS.

Strepsilas interpres—Turnstone. Have seen a few flocks of these birds passing through the country.

GEEUS PHILOHELA.

Philohela minor—American Woodcock. The woodcock is not, nor never has been, very numerous in this part of Indiana, owing mainly, I apprehend, to the fact that we have but little swampy land of the character which they frequent. They are, however, occasionally seen.

GENUS GALLINAGO.

Gallinago Wilsonii—Wilson's Snipe. Where swampy meadows are found these birds may occasionally be seen in the latter part of March and through the month of April.

GENUS TRINGA.

Tringa maculata—Jack Snipe. The jack snipe is not numerous, though I have occasionally seen it about ponds.

Tringa Wilsonii—Least Sandpiper. Frequent our rivers, though by no means abundant.

GENUS SYMPHEMIA.

Symphemia semipalmata—Willet. This noisy bird is frequently seen along Whitewater in early spring and autumn. It is is a fisher, and catches small minnows by running them down in shallow water, all the while uttering its shrill discordant notes, which may be heard at the distance of half a mile.

GENUS RHYACOPHILUS.

Rhyacophilus solitarius—I have frequently observed this bird, though they are by no means numerous.

GENUS TRINGOIDES.

Tringoides macularius—Spotted Sandpiper. This noisy restless sandpiper is much the most numerous of all the family in this region. They build their nests near the banks of the river, in a bunch of reeds or under a small bush. Their eggs are much larger in proportion to its size than those of any other bird I have ever known.

GENUS ACTITURUS.

Actiturus Bartramius—Bartram's Sandpiper—Field Plover. I have seen but two of these birds in the county. In southern Illinois they are numerous all over the prairies.

GENUS NUMENIUS.

Numenius longirostris.—Long-billed Curlew. Very rare; only one or two have been seen.

GENUS PORZANA.

Porzana Carolina.—Sora. Common Rail. Frequently seen in spring on their way north. They breed in Kosciusko and other northern counties.

GENUS FULICA.

Fulica Americana.—Coot. Mud Hen. When overtaken by storms these birds frequently stop in our streams, and remain a few days. They do not breed here.

GENUS GALLINULA.

Gallinula galeata.—Florida Gallinule. I have seen two gallinules which had been caught in the neighborhood. They seem to have very little fear of man, and are easily tamed.

GENUS ANSER.

Anser hyperboreus.—Snow Goose. Occasionally seen flying over in their migrations.

Anser Cærulescens.—White-headed goose. I have seen one flock containing four of these geese.

GENUS BERNICLA.

Bernicla Canadensis.—Wild Goose—Canadian Goose. Seen in large flocks every fall and spring in their semi-annual migrations. They rarely ever stop, except they become bewildered during dense fogs.

Bernicla Brenta.—Brant. Occasionally seen flying over when migrating.

GENUS ANAS.

Anas boschas.—Mallard—Green-head. This duck is probably more numerous in our waters than any other species.

GRNUS DAFILA.

Dafila acuta.—Pintail—Sprigtail. Has rarely been seen within the past ten years.

GENUS NETTION.

Nettion Carolinensis.—Green-winged Teal. This beautiful little duck is regularly seen here in the spring and fall.

GENUS QUERQUEDULA.

Querquedula discors.—Blue-winged Teal. This diminutive duck appears here about the first of October, usually remaining several days. They are very unsuspecting birds, and easily approached by the gunners, and are therefore much sought after by "pot hunters."

GENUS SPATULA.

Spatula clypeata.—Shoveler Duck. This very curiously marked duck is common late in April, when most other ducks have disappeared.

GENUS MARECA.

Mareca Penelope.—Widgeon. In the year 1855 a few widgeons were shot here. This is the only instance known of their appearance here.

GENUS AIX.

Aix sponsa.—Summer Duck. Wood Duck. This, decidedly the most beautiful of all the ducks, is very common along Whitewater. They always build their nest in hollow trees, and never upon the ground, as is the custom of all other ducks.

GENUS FULIX.

Fulix marila.—Big Black Head Duck.

Fulix affinis.—Little Black Head. Both these ducks are occasionally seen, though by no means abundant.

GENUS AYTHYA.

Aythya Americana.—Red Head. Pochard. But a single instance known of their having appeared here—1855.

Aythya vallisneria.—Canvas Back Duck. This far-famed duck made its appearance here for the first and only time, to my knowledge, in the month of March, 1855. One of them was shot by a friend, which I had a chance to examine and afterwards to taste. It was very tender and juicy, but had such a fishy flavor that it could scarcely be eaten. I supposed they had come from the southern seacoast, where they had fed upon shell-fish instead of eel-grass, which seems to be necessary to perfect their flavor.

GENUS BUCEPHALA.

Bucephala Americana.—Golden Eye. Quite common in spring.

Bucephala albeola—Butter Ball. Quite numerous through the fall and winter.

GENUS MELANETTA.

Melanetta velvetina—Velvet Duck. Numerous in winter.

GENUS MERGUS.

Mergus Americanus—Sheldrake. These birds are very numerous in Whitewater during the whole winter, which they visit for the purpose of fishing. The stream is remarkably clear, and, being very rapid, seldom freezes over, but the water becomes cold enough to benumb the fish, which thus fall an easy prey to these expert divers. I have known one of them to hatch and rear its brood in this vicinity.

GENUS LOPHODYTES.

Lophodytes cucullatus—Hooded Merganser. This handsome little merganser is very numerous during the colder periods of the year.

GENSS LARUS.

Larus argentatus—The Silvery Gull. Occasionally seen in autumn and spring.

GENUS CHROICOCEPHALUS.

Chroicocephalus Philadelphius—Bonaparte's Gull. Frequently seen all over the State. A small but beautiful bird.

GENUS STERNA.

Sterna paradisea—The Roseate Tern. I have frequently seen this tern along the river and canal.

GENUS PELECANUS.

Pelecanus onacrotalus—Rough-billed Pelican. The pelican occasionally visits us, but its visits are like those of the angels, "few and far between."

GENUS GRACULUS.

Graculus carbo—Common Cormorant. I have seen a single specimen in the winter.

GENUS COLYMBUS

Colymbus torquatus—Loon, Great Northern Diver. The loon is frequently seen in our waters in the fall and spring. Those I have seen in the water were great divers, but could not be forced to take wing. The solitary cry or wail of the loon is, to my ear, the most melancholy sound I have ever heard, conveying to the mind the idea of utter hopelessness and despair.

GENUS PODILYMBUS.

Podylimbus podiceps—Didapper. Grebe. Very common in our waters in October and November. They generally remain about three weeks.

This concludes the list of all the birds of the county which I have observed and been able to identify. Doubtless many others visit this section which I have not observed, and I have seen many which I have not been able to identify.

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ERRATA.

Page 36, 8th line from top, for "more" read "most."

" 48, 10th " " for "N" read "F."

" 56, 17th " bottom, for "*semireticulatis*" read "*semireticulatus.*"

" 64, 8th " " for "Coal" read "Coal I."

" 64, 9th " " omit letter "I."

" 80, 3d " " for "thousand" read "hundred."

" 182, 11th " top, for "below" read "above."

" 184, 2d " bottom, for "worked" read "worn."

" 188, 18th " top, for "Kunkle" read "Kemble."

" 189, 2d " " for "*planœanvoxa*" read "*planoconvexa.*"

" 193, 16th " bottom, for "Althero" read "Alther."

" 204, 6th " top, for "Stay" read "Slay."

" 204, 13th " bottom, for "*Mephites*" read "*Mephitis.*"

" 205, 8th " " for "Institute" read "Institution."

" 209, 5th " " for "*Butes*" read "*Buteo.*"

" 209, bottom line, for "tufted" read "ruffed."

" 211, 8th line from top, for "there" read "they."

" 211, 9th " " for "were" read "we."

" 212, 6th " bottom, for "there" read "these."

" 214, 10th and 11th lines from bottom, for "*Sagornis*" read "*Sayornis.*"

" 215, 5th line from top, for "caves" read "coves."

" 217, 13th " bottom, for "*Letophaga*" read "*Setophaga.*"

" 120, 5th " top, for "Norman" read "Norborne."

" 10, 9th " " for "Norman B." read "Norborne."